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JPL PUBLICATION 77-62, VOLUME II

Viking Lander Camera Radiometry Calibration Report

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November 1, 1977

National Aeronautics and
Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California 91103

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National Aeronautics and Space Administration

PREFACE

The work described in this two-volume report was conducted in the Image Processing Laboratory by the Earth and Space Sciences Division of the Jet Propulsion Laboratory.

Volume I describes the test methods and data reduction techniques used to determine and remove instrumental signatures from Viking Lander Camera Radiometry Data.

Volume II contains voluminous plots and tables of responsivity for diodes of all cameras and is published separately as a microfiche package. When processed, copies of the microfiche package may be obtained from the Technical Information and Documentation Division, Jet Propulsion Laboratory, 4800 Oak Grove Drive, Pasadena, California 91103.

ACKNOWLEDGMENTS

The efforts of many people were directed toward making this test program meaningful and complete to the last detail. Among those who contributed to the success of the tests were: Ed Green, Jack Donahue, and Cliff Maxwell of ITEK, Phil Avrin of Martin Marietta Aerospace (MMA), and Steve Wall of Langley Research Center (LRC).

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4

I

RESPONSIVITY GRAPHS

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (SPARE)
SSR
PRODUCT
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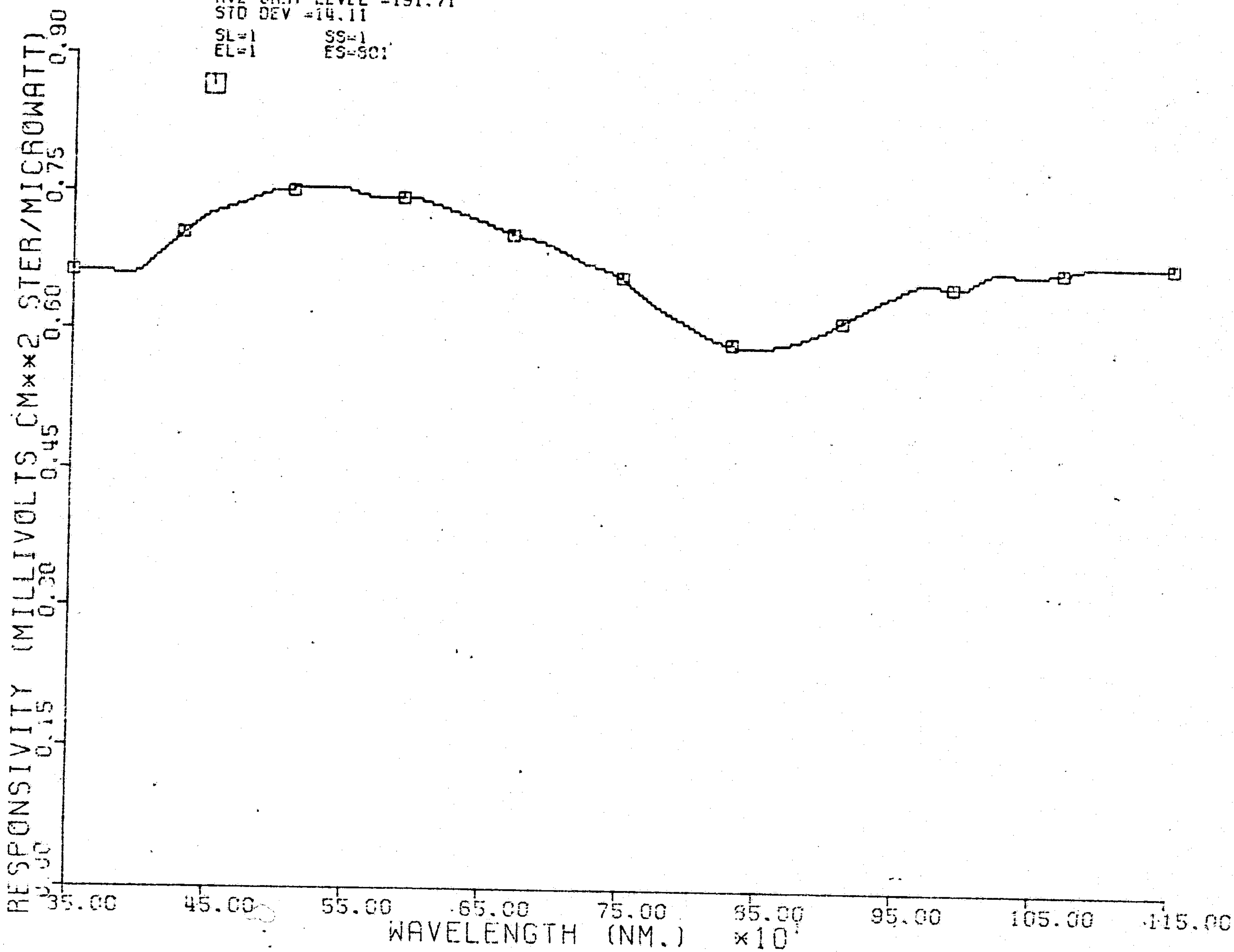
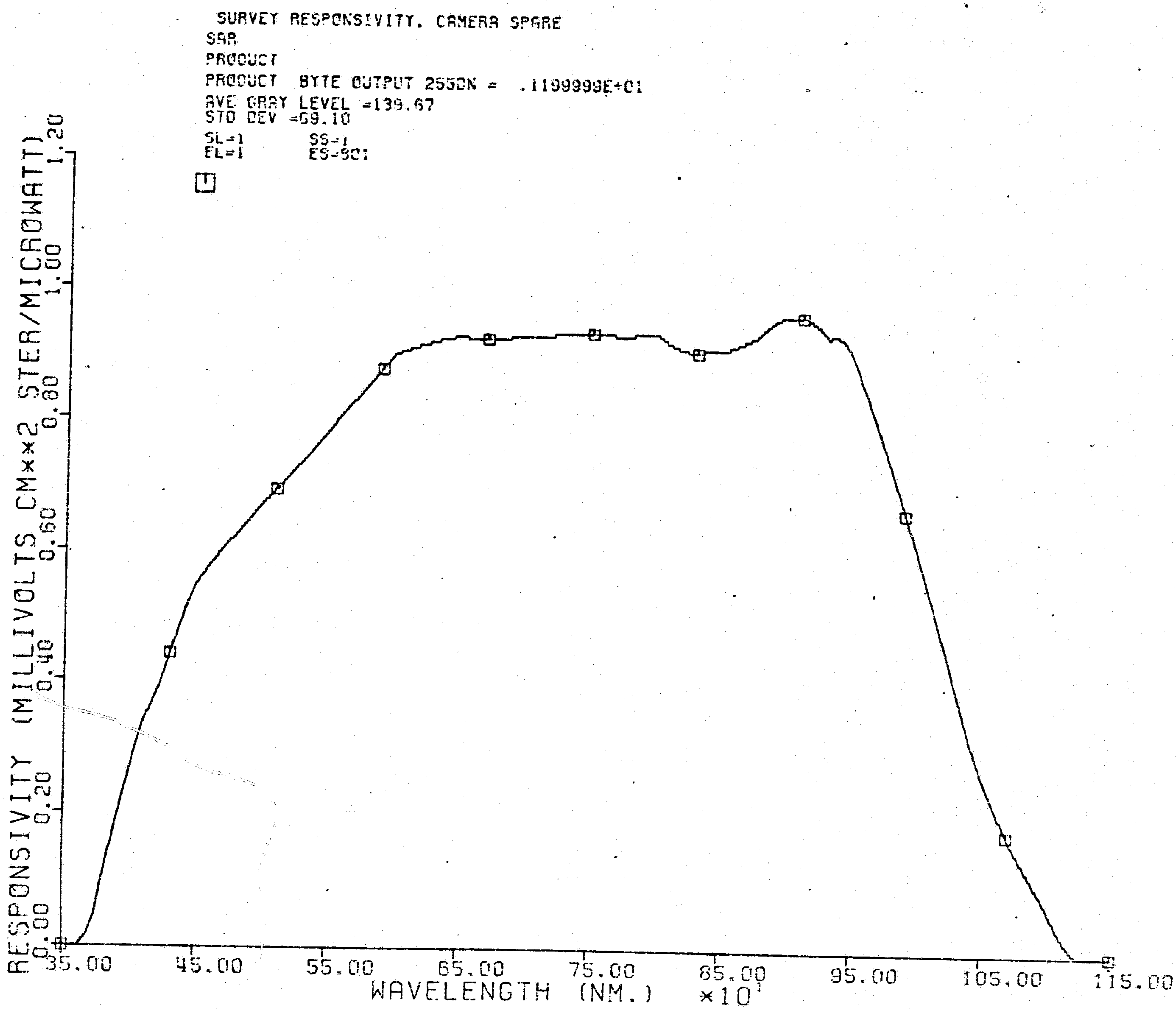
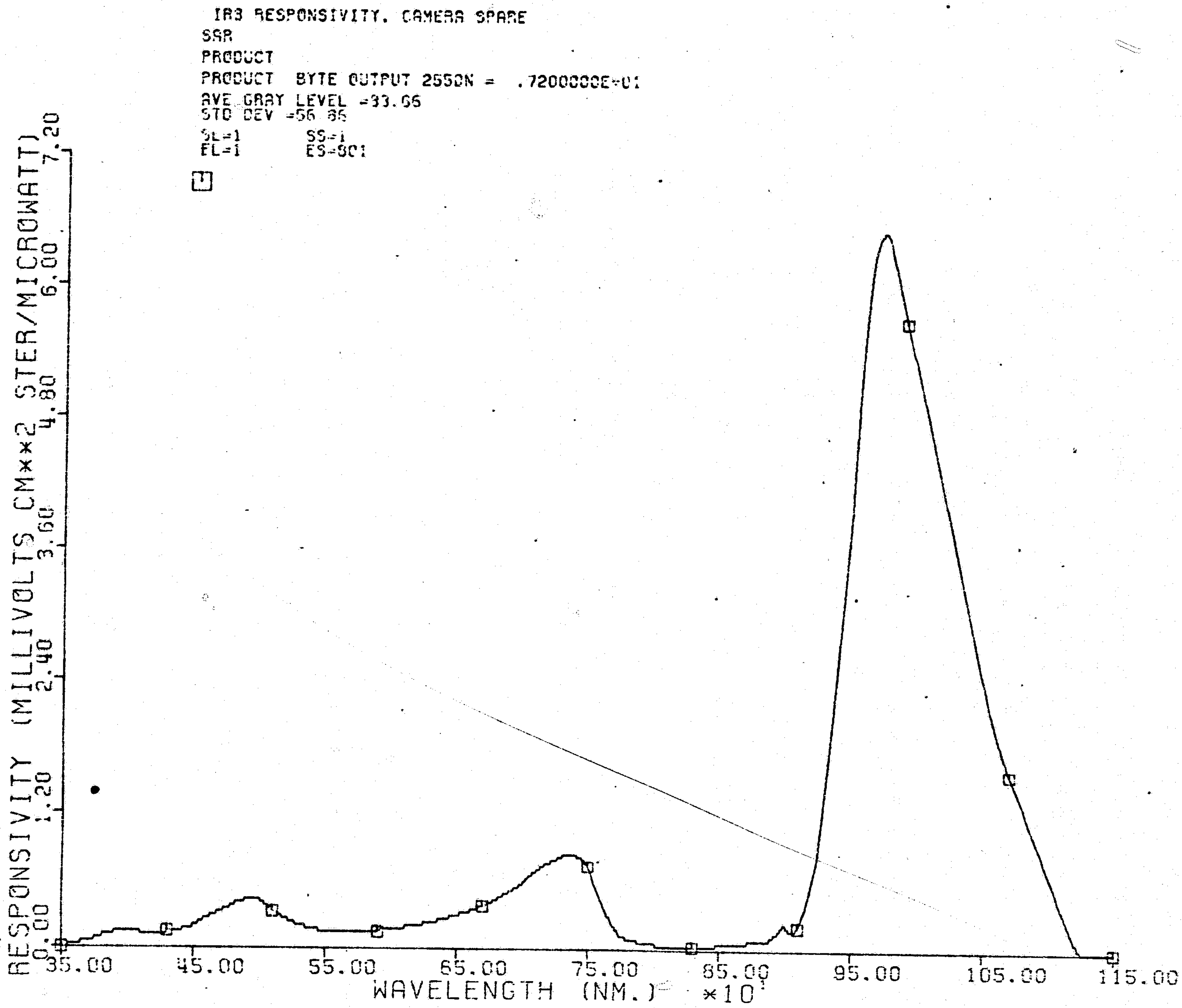
AVE GRAY LEVEL =191.71
STD DEV =14.11
SL=1 SS=1
EL=1 ES=801



6


SURVEY RESPONSIVITY. CAMERA SPARE
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =139.67
STD DEV =69.10
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10[1]

7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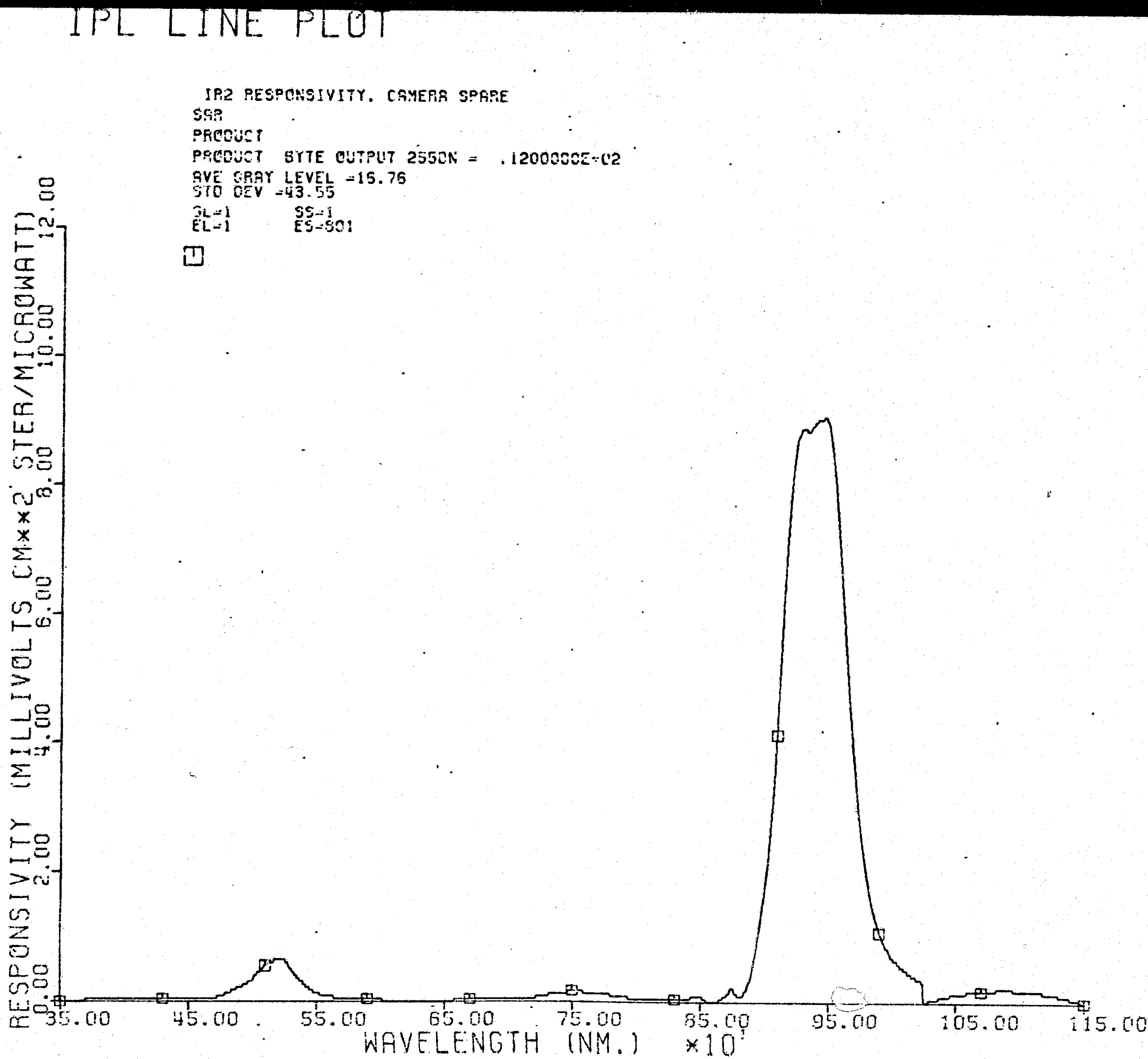
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .7200000E+01
AVE GRAY LEVEL =33.66
STD DEV =56.86
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.20
2.40
3.60
4.80
6.00
7.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

8


IPL LINE PLOT
IR2 RESPONSIVITY, CAMERA SPARE
SAR
PRODUCT
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AVE GRAY LEVEL =15.76
STD DEV =43.55
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EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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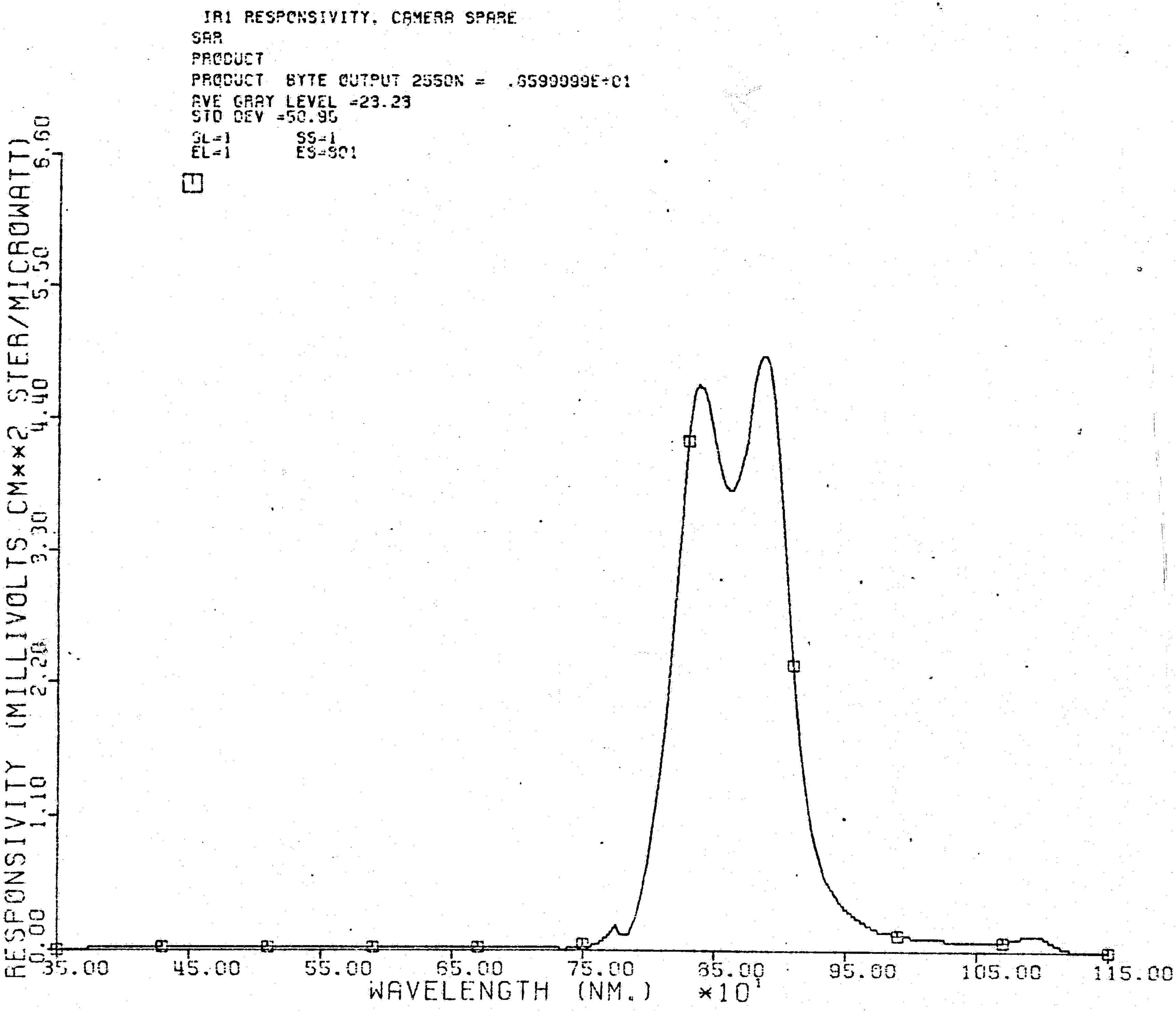
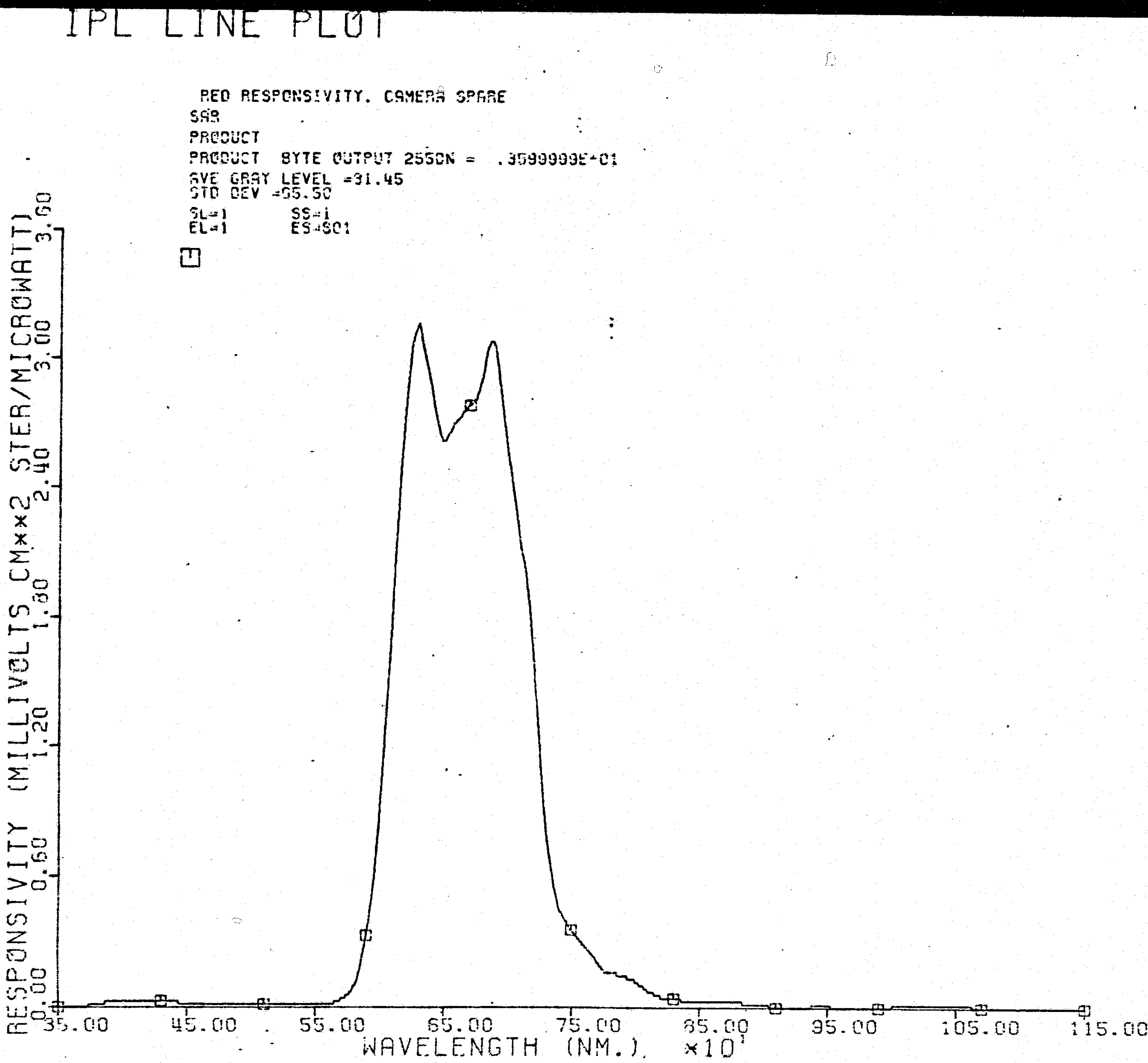
2.00
4.00
6.00
8.00
10.00
12.00
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

9

IPL LINE PLOT



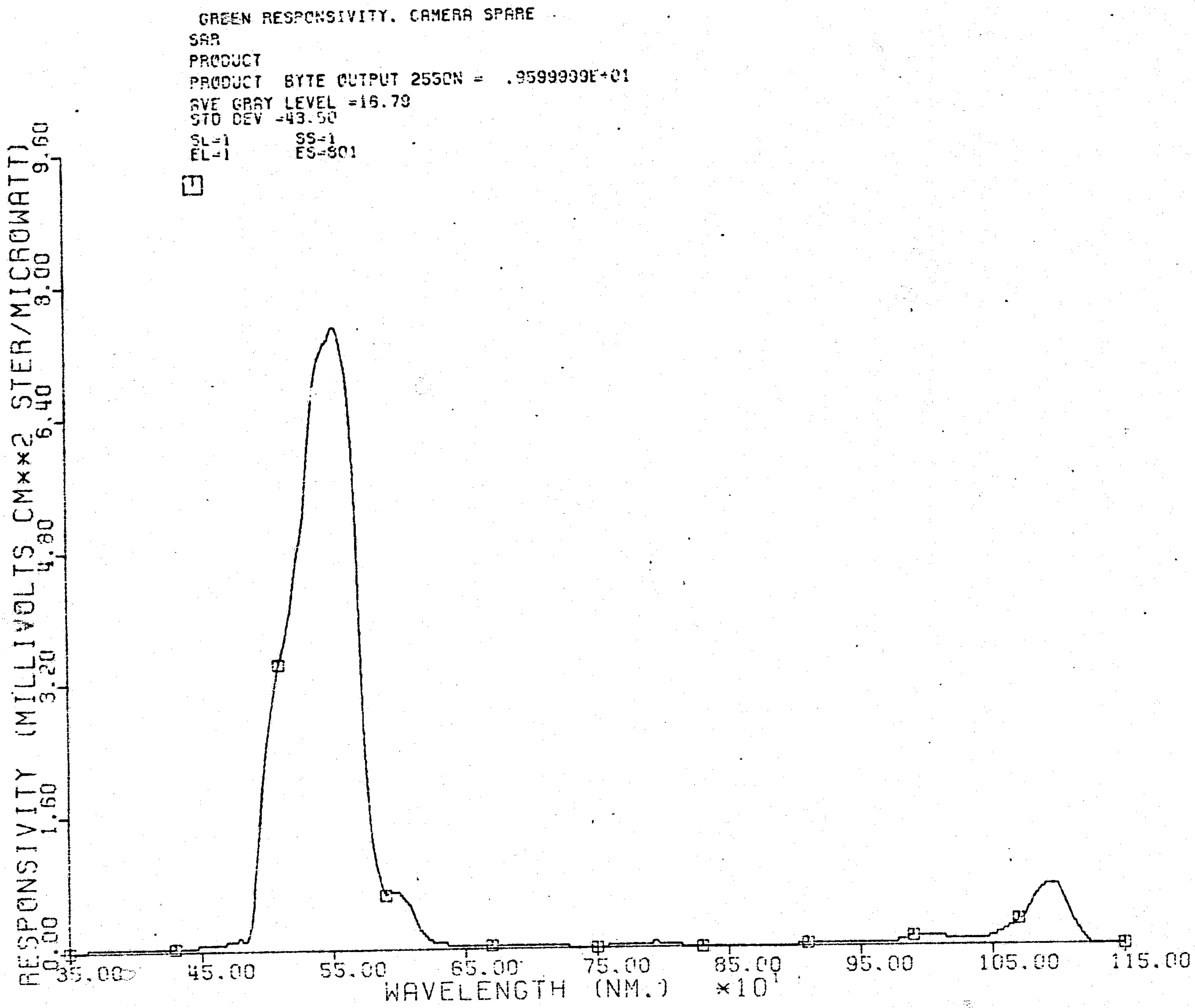
10

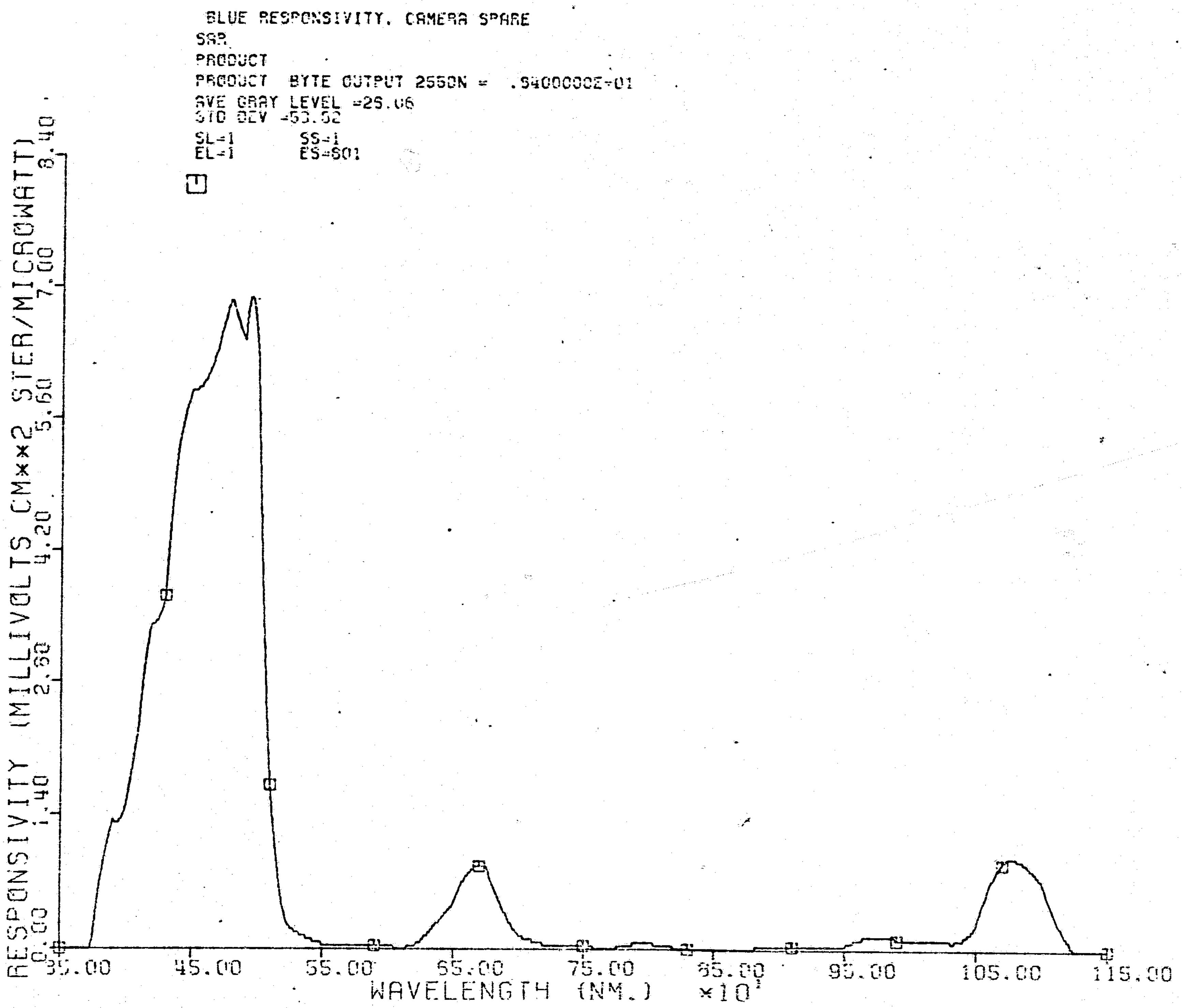


IPL LINE PLOT
RED RESPONSIVITY. CAMERA SPARE
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .3599999E+01
AVE GRAY LEVEL =31.45
STD DEV =55.50
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.60
1.20
1.80
2.40
3.00
3.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹

11

IPL LINE PLOT




BLUE RESPONSIVITY, CAMERA SPARE
SAR
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EL=1 ES=601
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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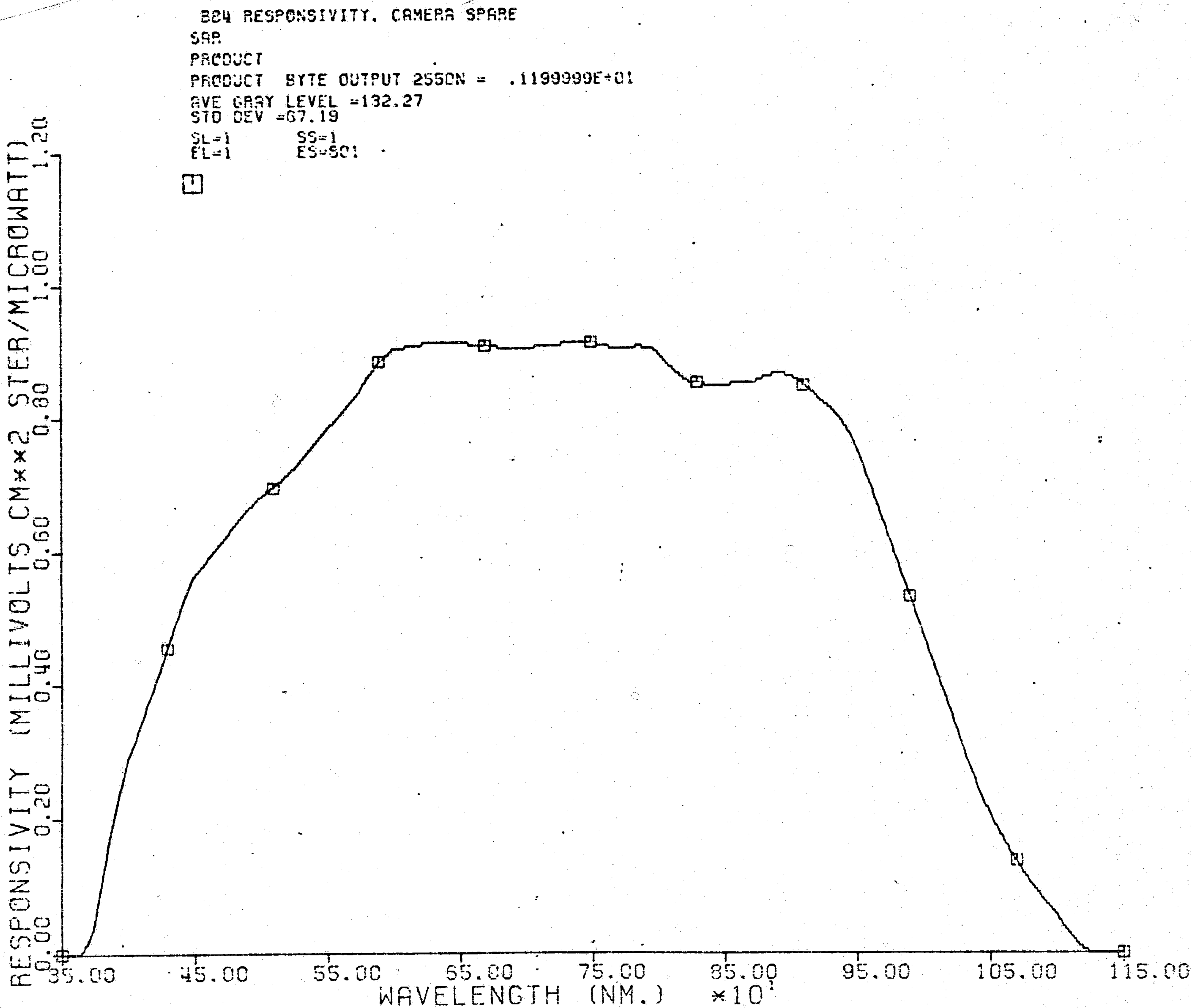
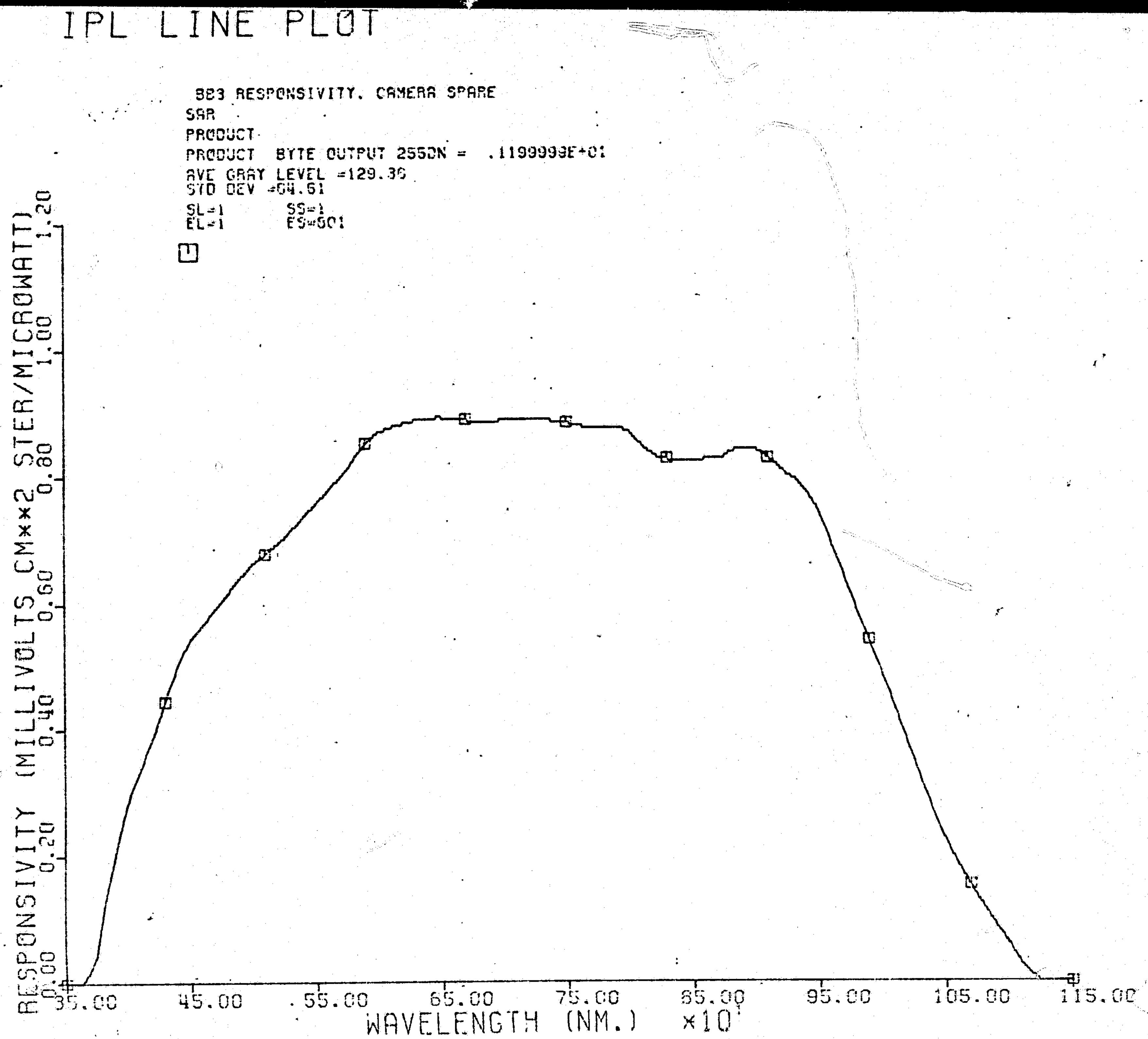
1.40
2.80
4.20
5.60
7.00
8.40
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10'

. L LINE PLOT

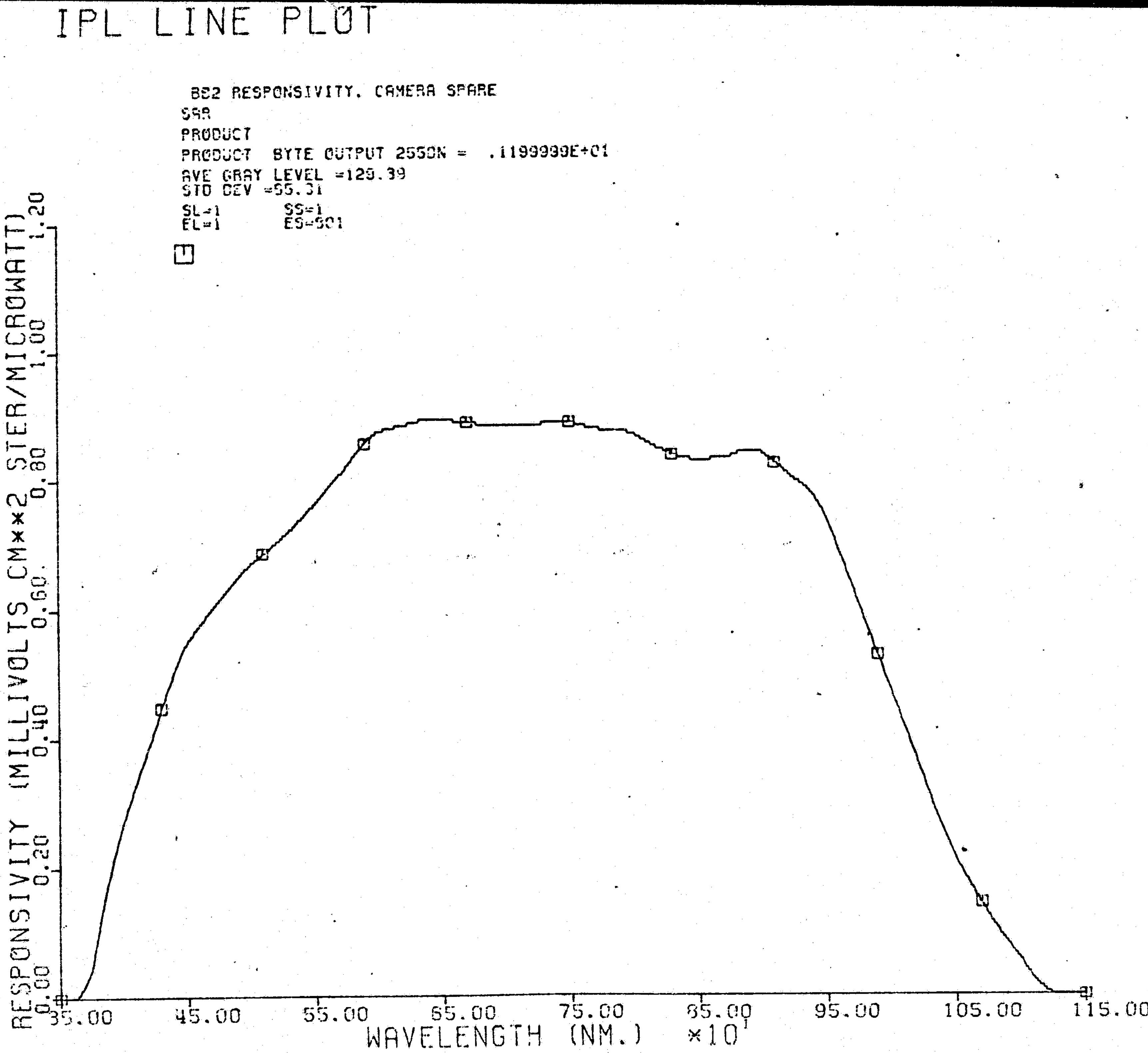


14



IPL LINE PLOT
8B3 RESPONSIVITY, CAMERA SPARE
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =129.36
STD DEV =64.61
SL=1 SS=1
EL=1 ES=601
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10

15


IPL LINE PLOT
BB2 RESPONSIVITY, CAMERA SPARE
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =120.39
STD DEV =55.31
SL=1 SS=1
EL=1 ES=501
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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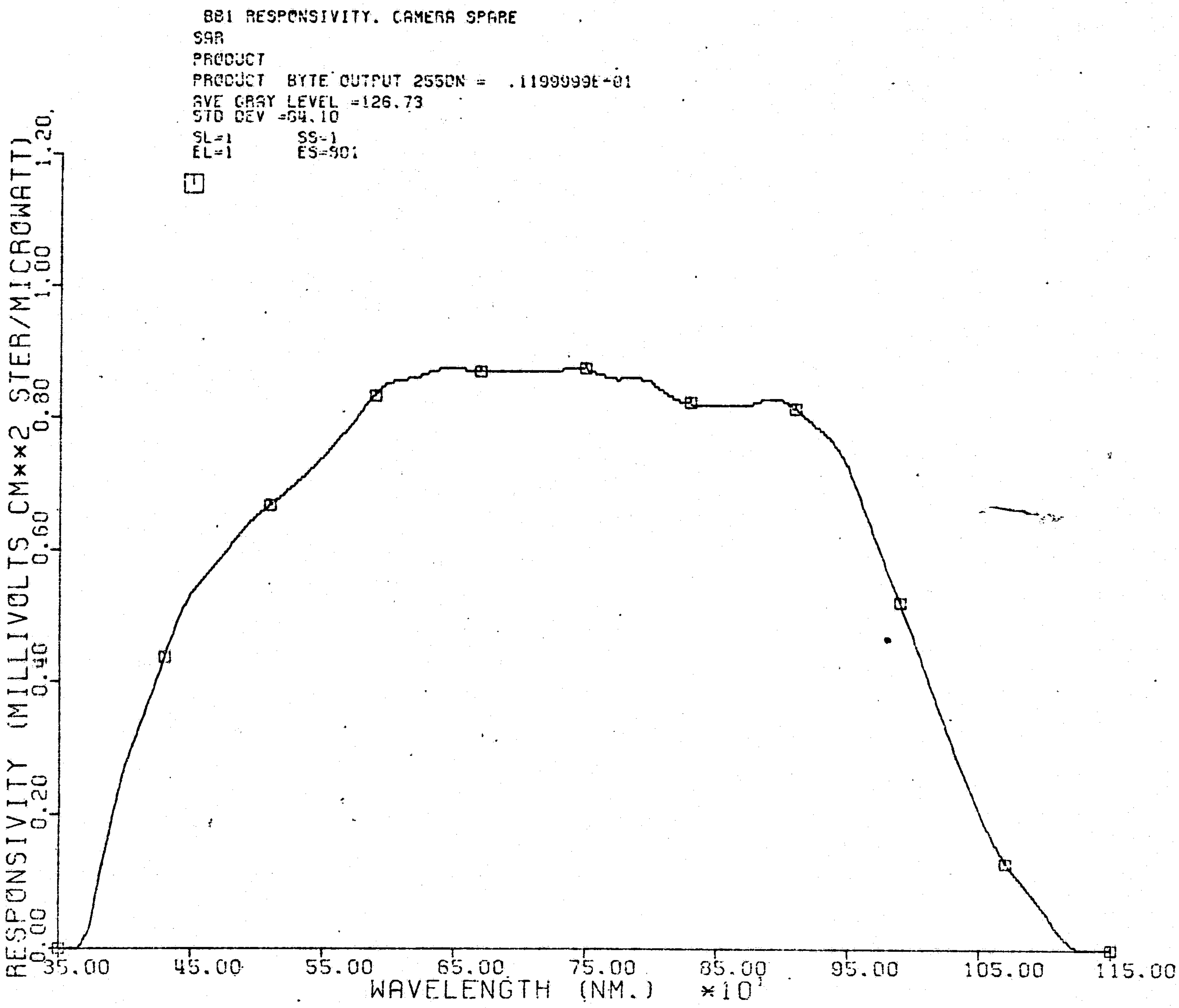
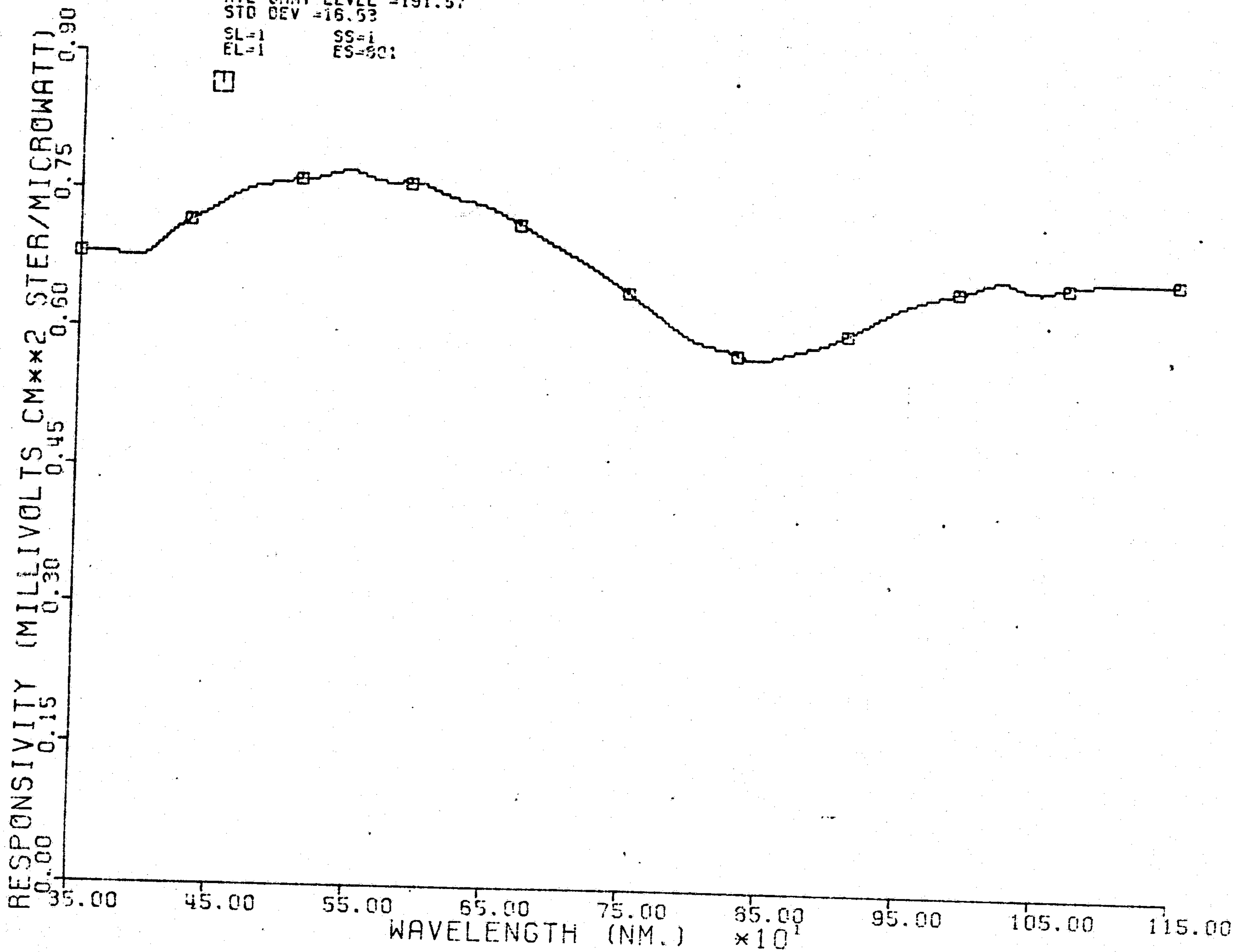
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

17

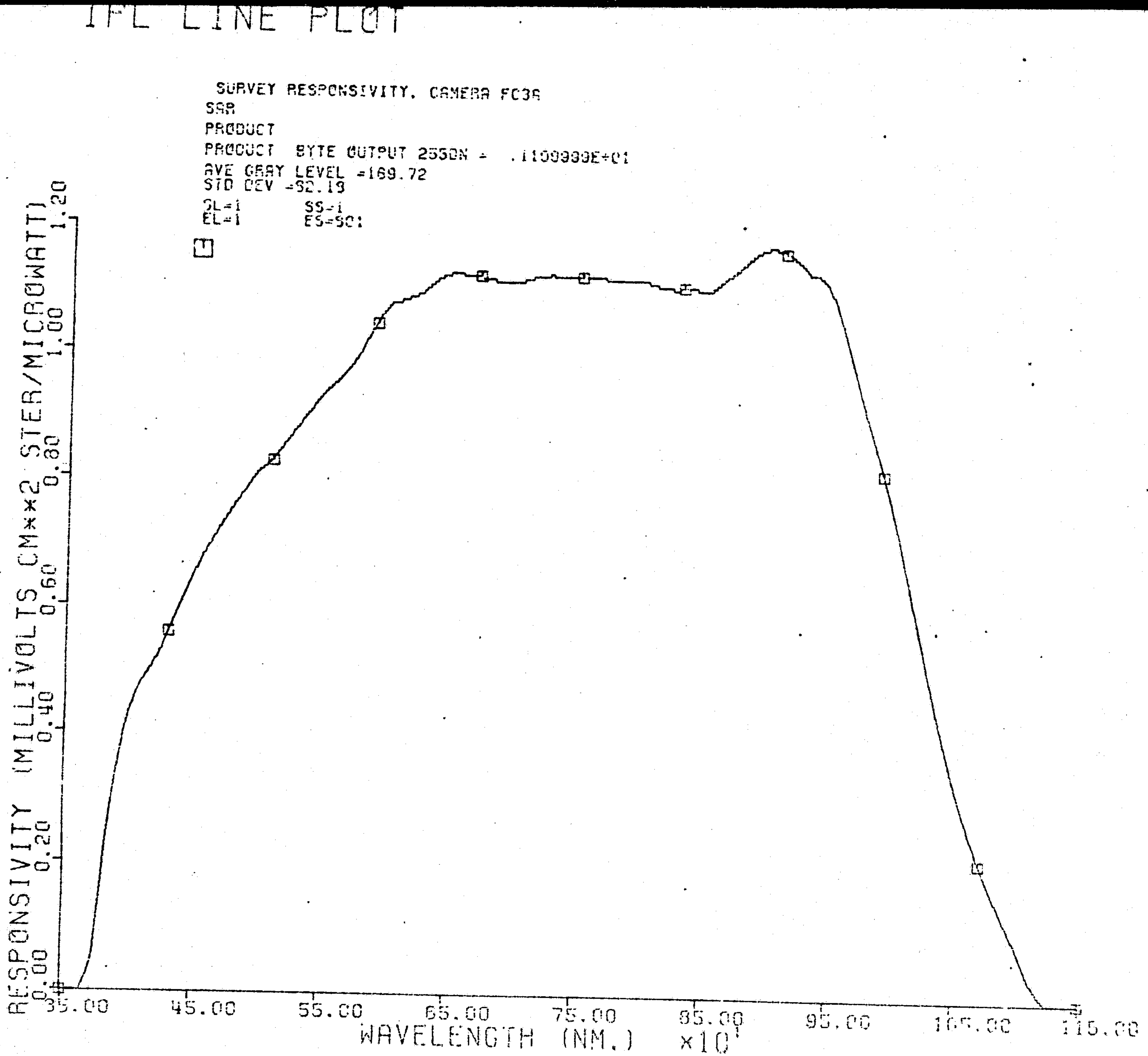

BB1 RESPONSIVITY. CAMERA SPARE
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E-01
AVE GRAY LEVEL =126.73
STD DEV =64.10
SL=1 SS=1
EL=1 ES=901
1
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

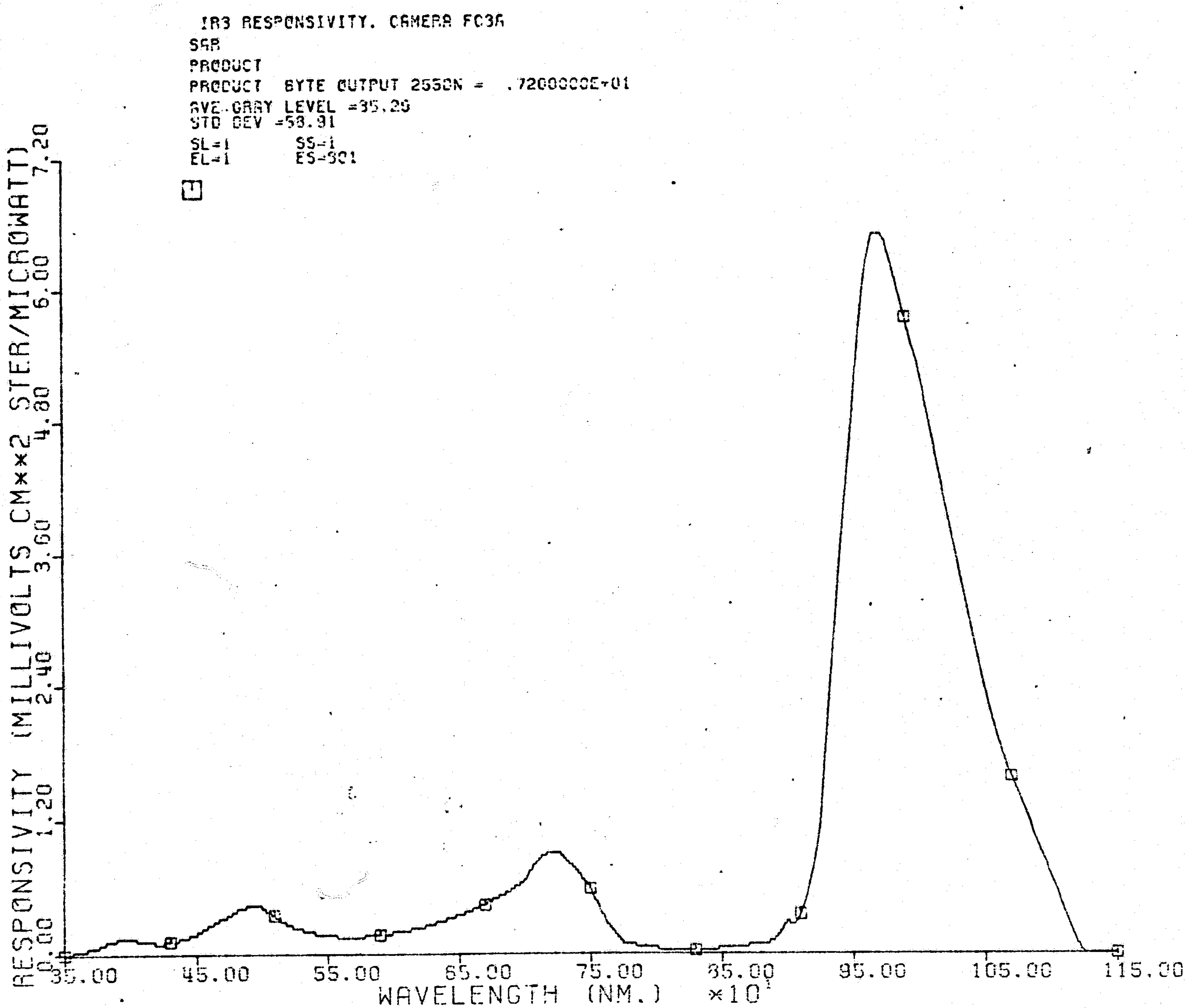
17

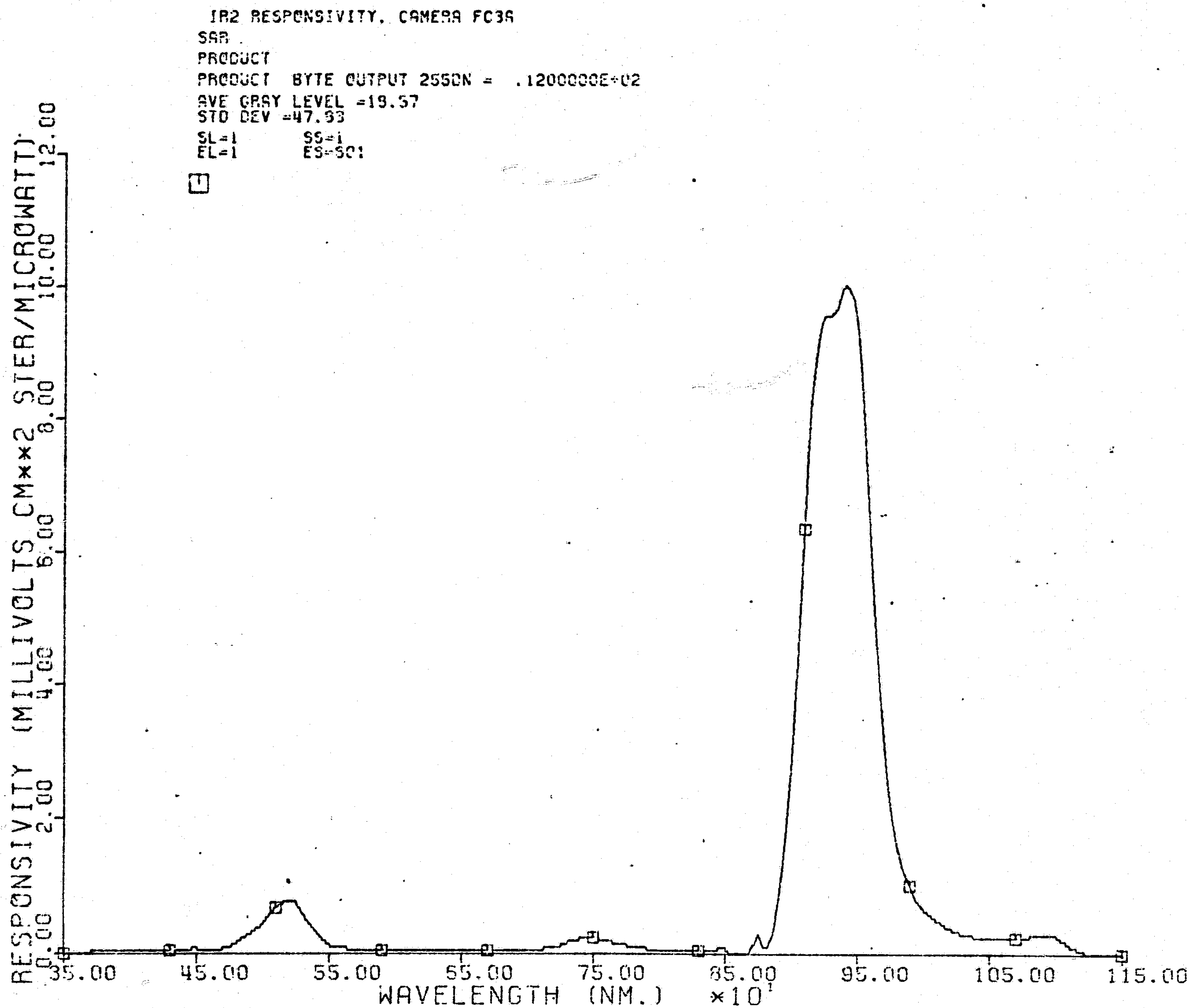
COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC3A)
SAA
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .00000000E+00
AVE GRAY LEVEL =191.97
STD DEV =16.53
SL=1 SS=1
EL=1 ES=801



18


IPL LINE PLOT
SURVEY RESPONSIVITY, CAMERA FC3A
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1100000E+01
AVE GRAY LEVEL =169.72
STD DEV =52.19
SL=1 SS=1
EL=1 ES=501
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) x10


IR3 RESPONSIVITY. CAMERA FC3A
SAB
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .72000000E+01
AVE GRAY LEVEL =35.20
STD DEV =58.91
SL=1 SS=1
EL=1 ES=301
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.20
2.40
3.60
4.80
6.00
7.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10


IR2 RESPONSIVITY, CAMERA FC3A
SAR .
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1200000E+02
AVE GRAY LEVEL =19.57
STD DEV =47.93
SL=1 SS=1
EL=1 ES=501
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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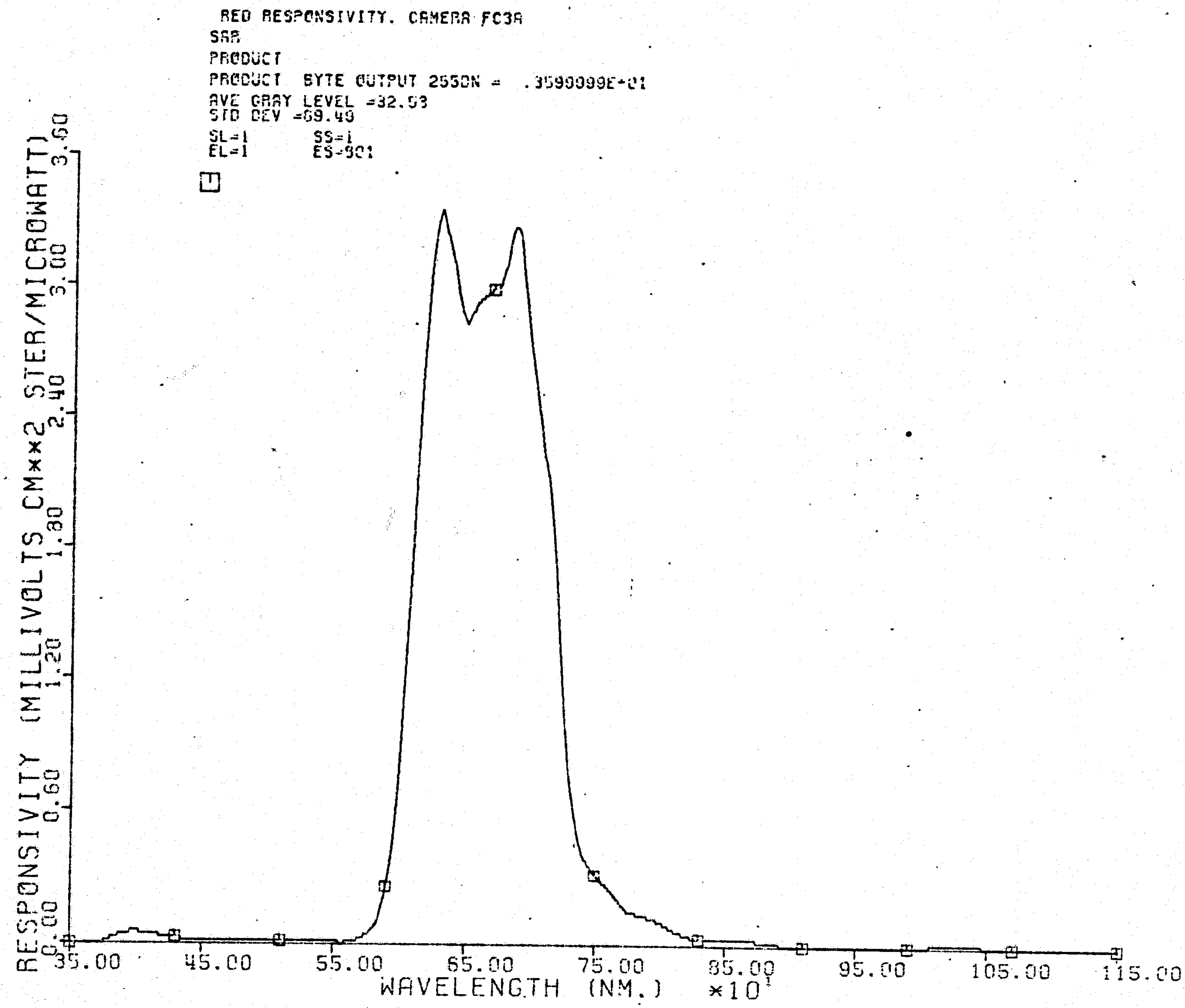
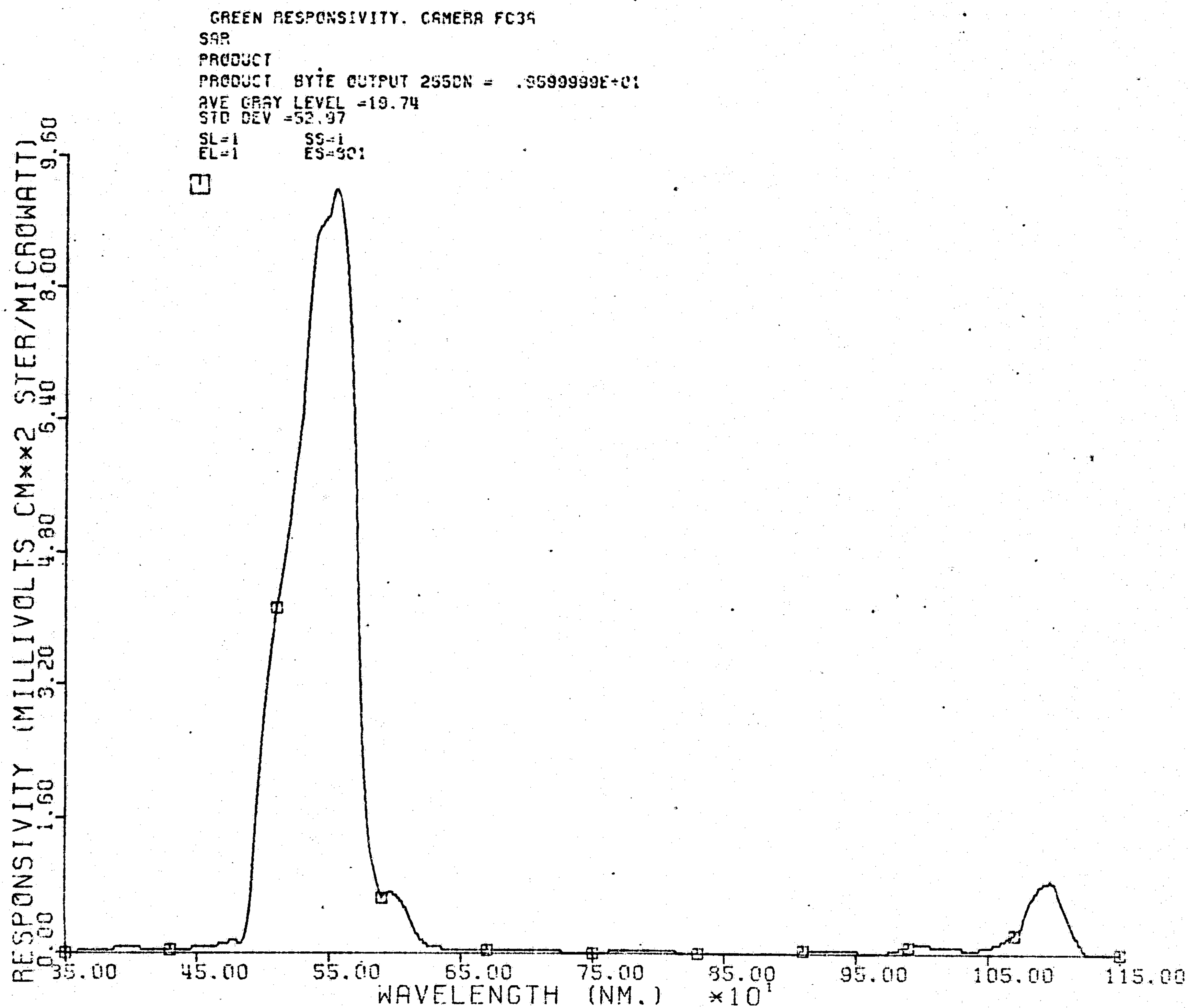
2.00
4.00
6.00
8.00
10.00
12.00
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]


RED RESPONSIVITY. CAMERA FC3A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .3599999E+01
AVE GRAY LEVEL =32.53
STD DEV =69.49
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.60
1.20
1.80
2.40
3.00
3.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10¹

22


GREEN RESPONSIVITY. CAMERA FC39
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .9599999E+01
AVE GRAY LEVEL =19.74
STD DEV =52.97
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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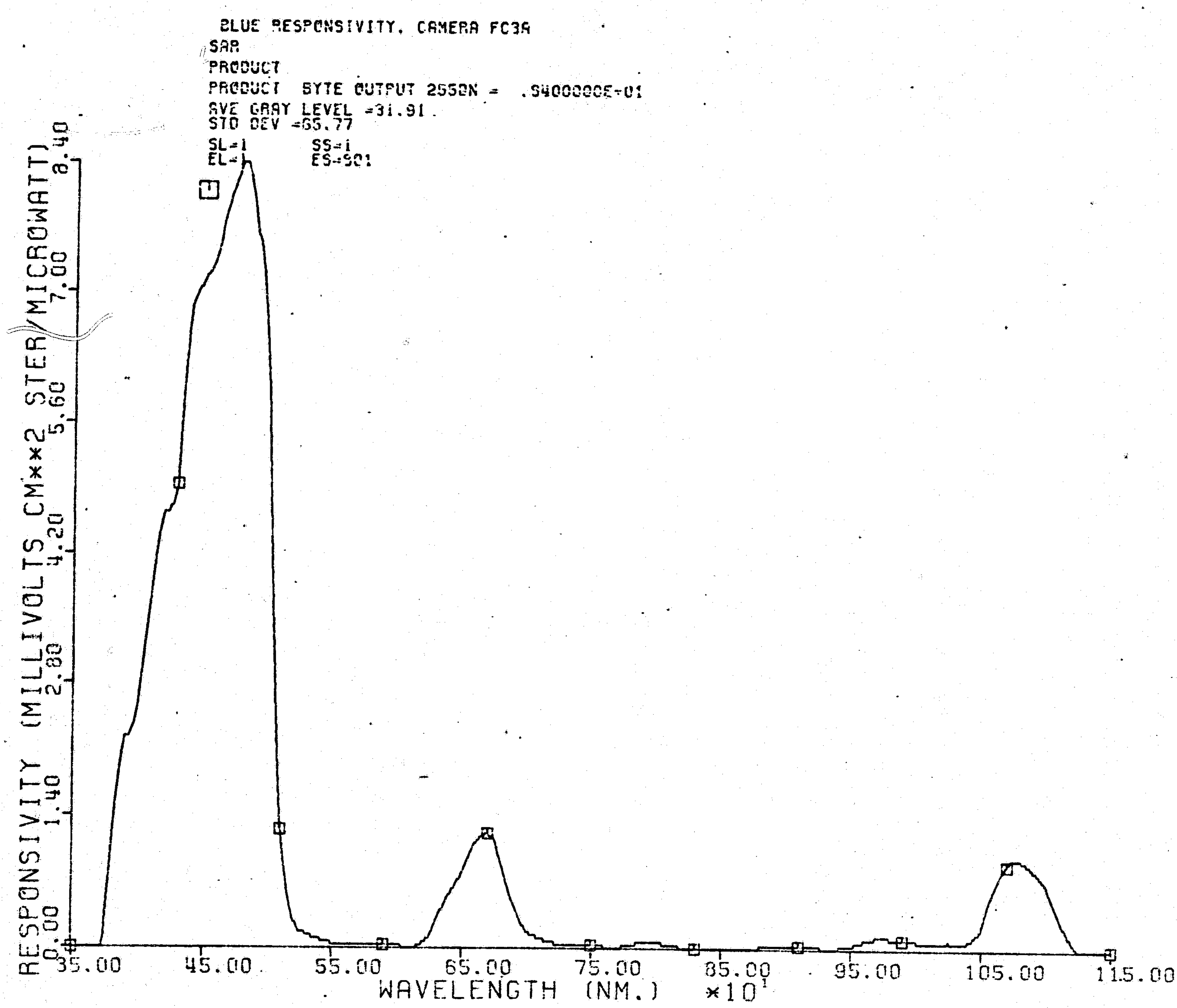
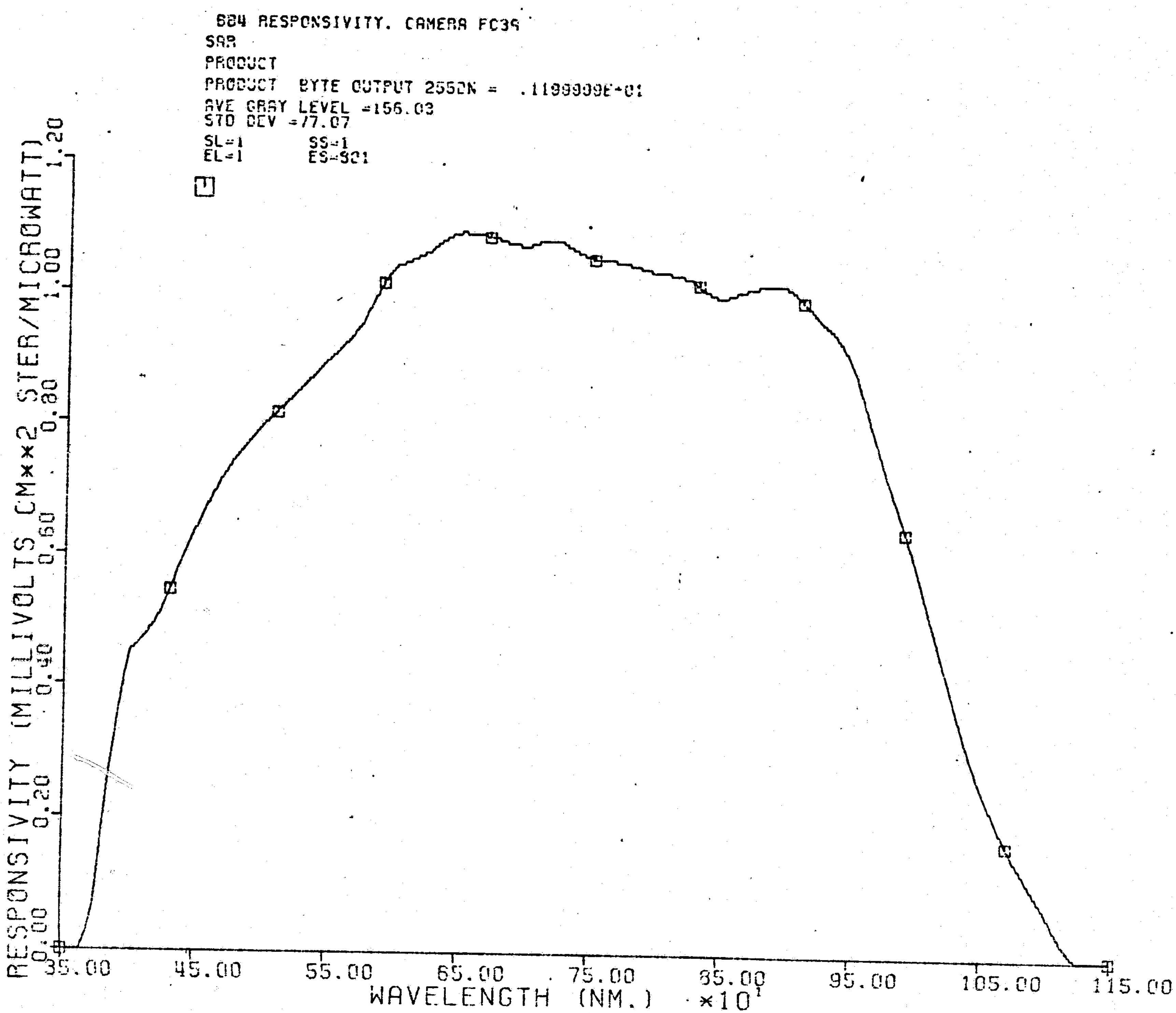
1.60
3.20
4.80
6.40
8.00
9.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]



BLUE RESPONSIVITY, CAMERA FC3A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .5400000E+01
AVE GRAY LEVEL =31.91
STD DEV =65.77
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.40
2.80
4.20
5.60
7.00
8.40
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

24



684 RESPONSIVITY. CAMERA FC39
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EL=1 ES=921
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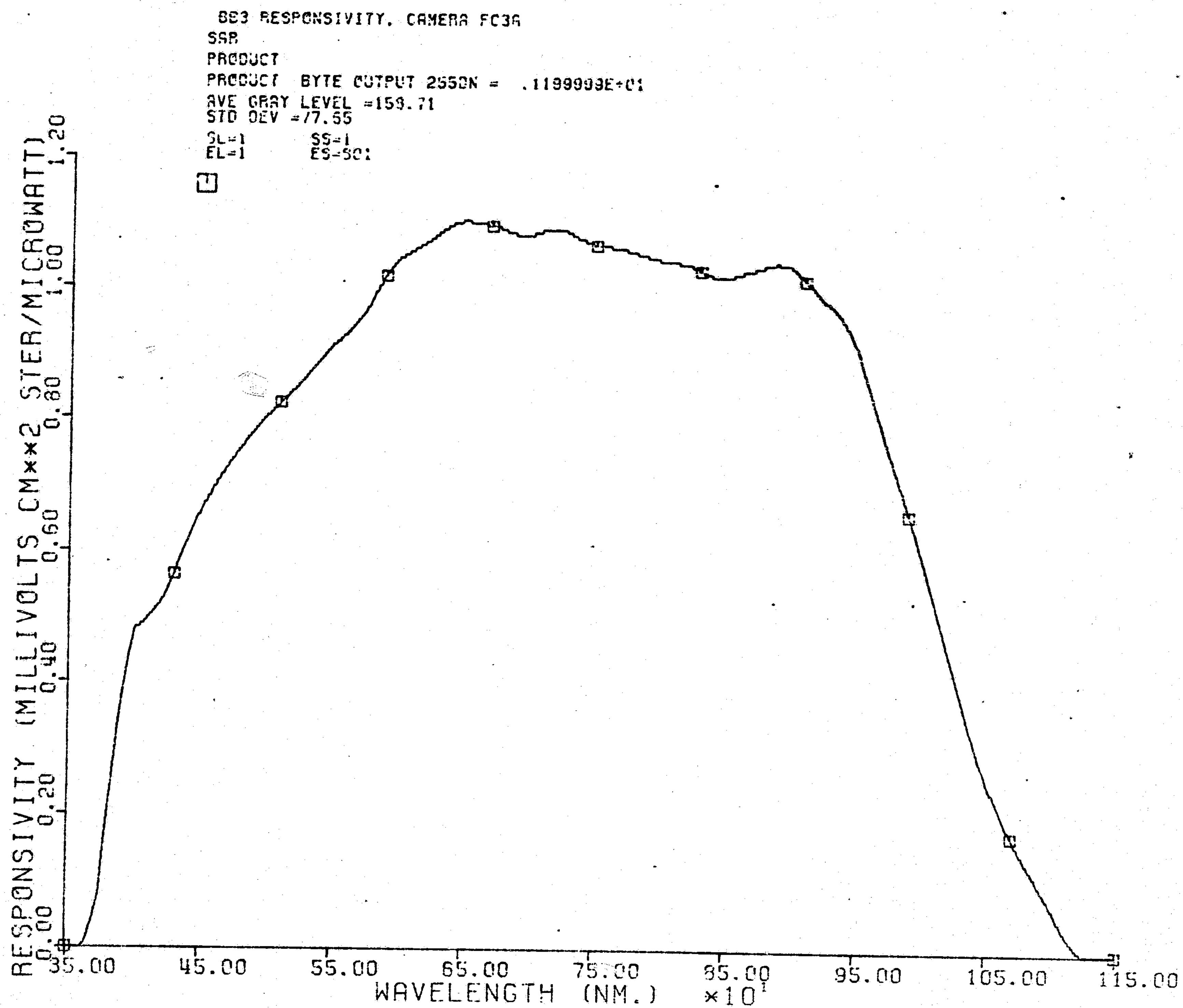
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹



BB3 RESPONSIVITY, CAMERA FC3A
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =159.71
STD DEV =77.55
SL=1 SS=1
EL=1 ES=501
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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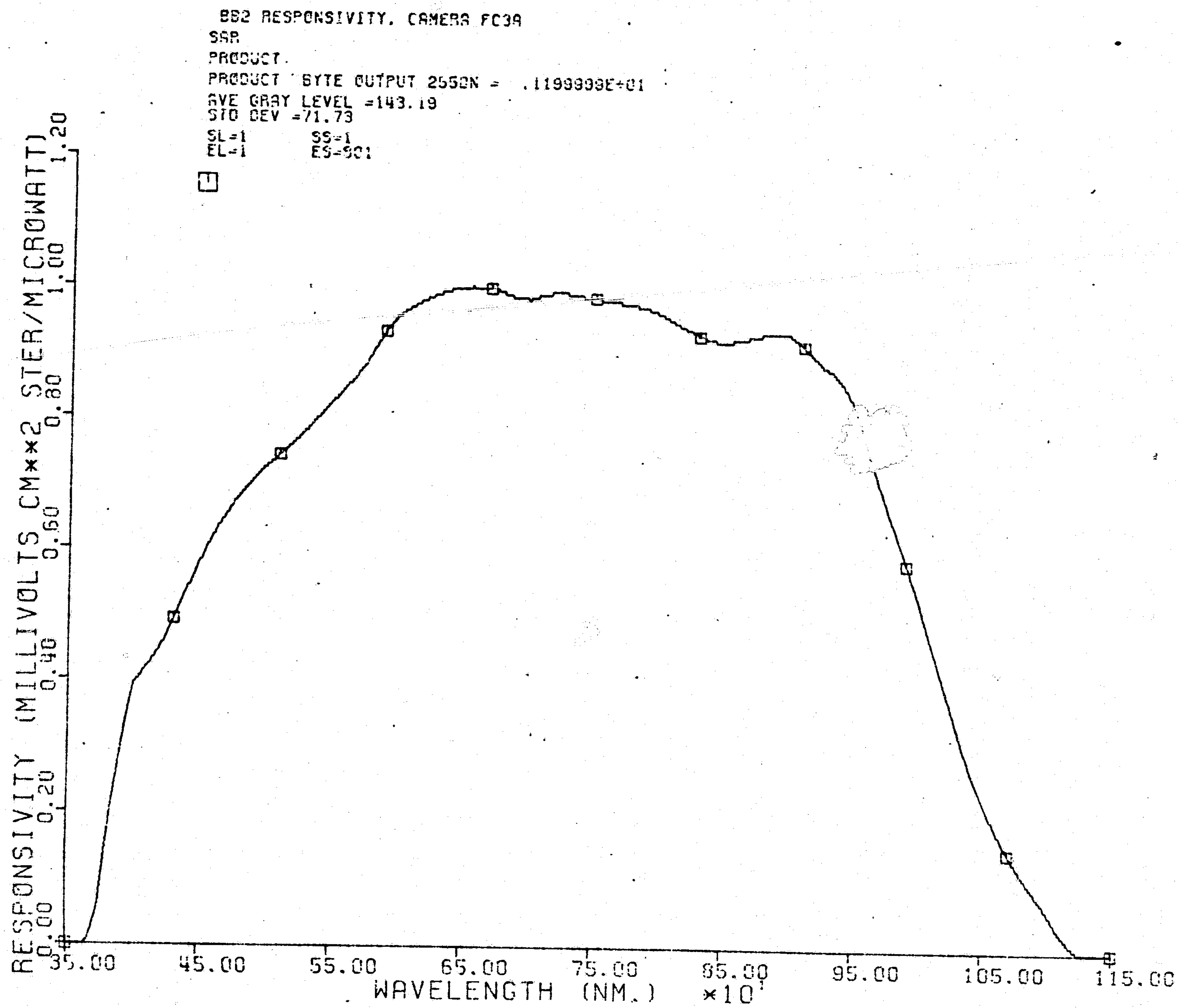
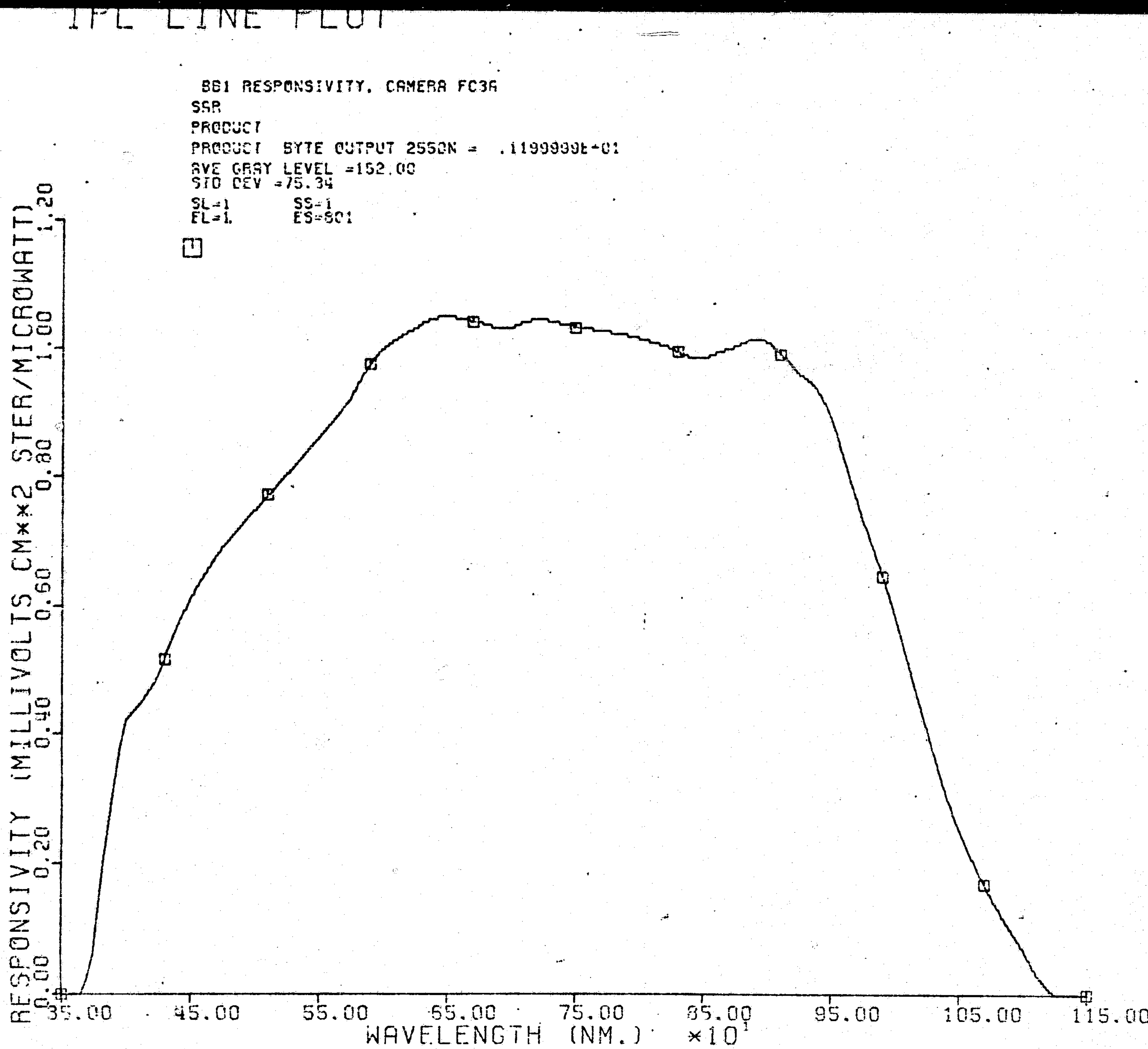
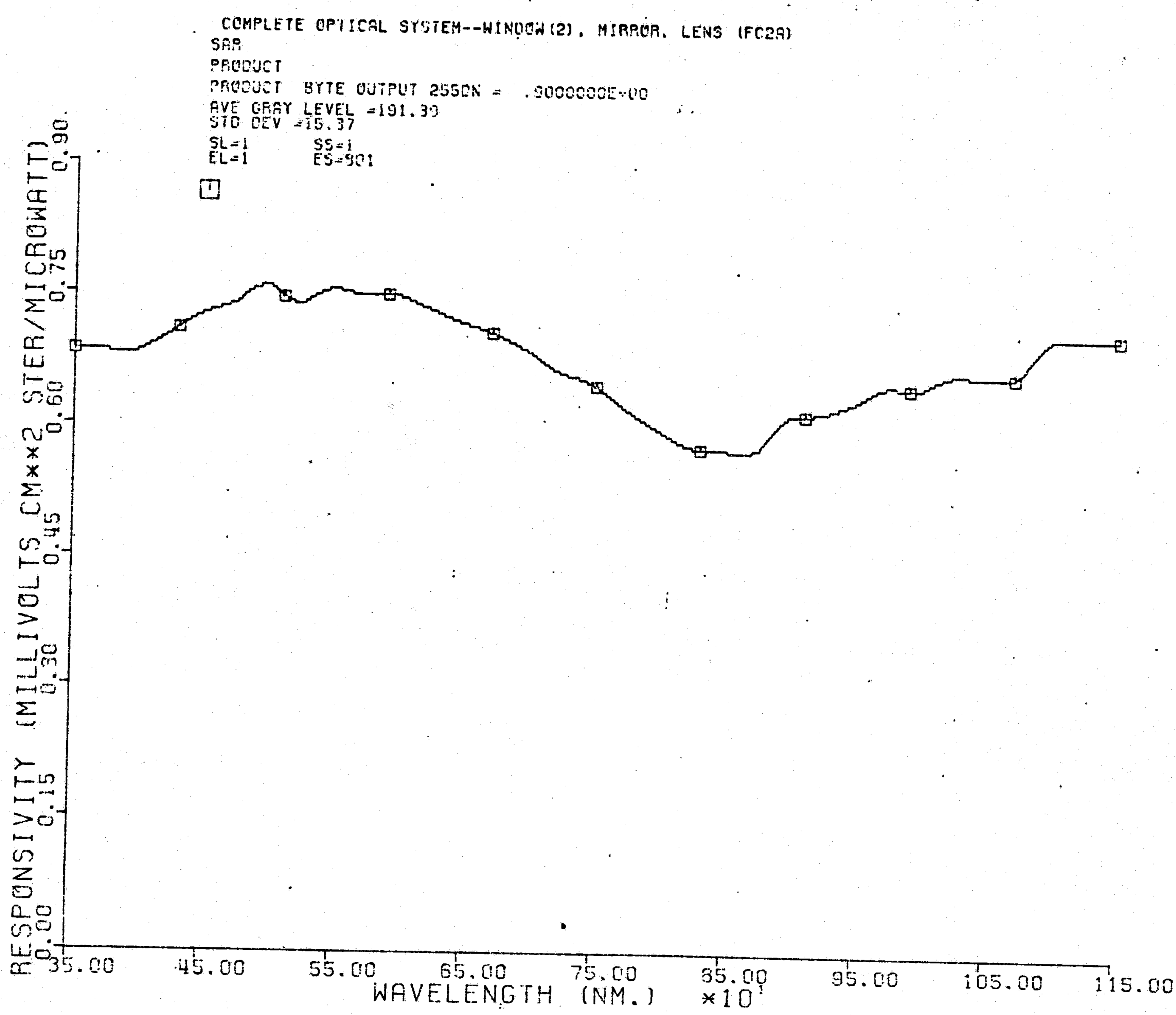
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹



BB2 RESPONSIVITY, CAMERA FC3A
SSR
PRODUCT.
PRODUCT BYTE OUTPUT 255DN = .1199993E+01
AVE GRAY LEVEL =143.19
STD DEV =71.73
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10'



IPL LINE PLOT
BB1 RESPONSIVITY, CAMERA FC3A
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =152.00
STD DEV =75.34
SL=1 SS=1
EL=1 ES=801
1
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10[1]


COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC2A)
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PRODUCT
PRODUCT BYTE OUTPUT 255DN = .9000000E+00
AVE GRAY LEVEL =191.39
STD DEV =15.37
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
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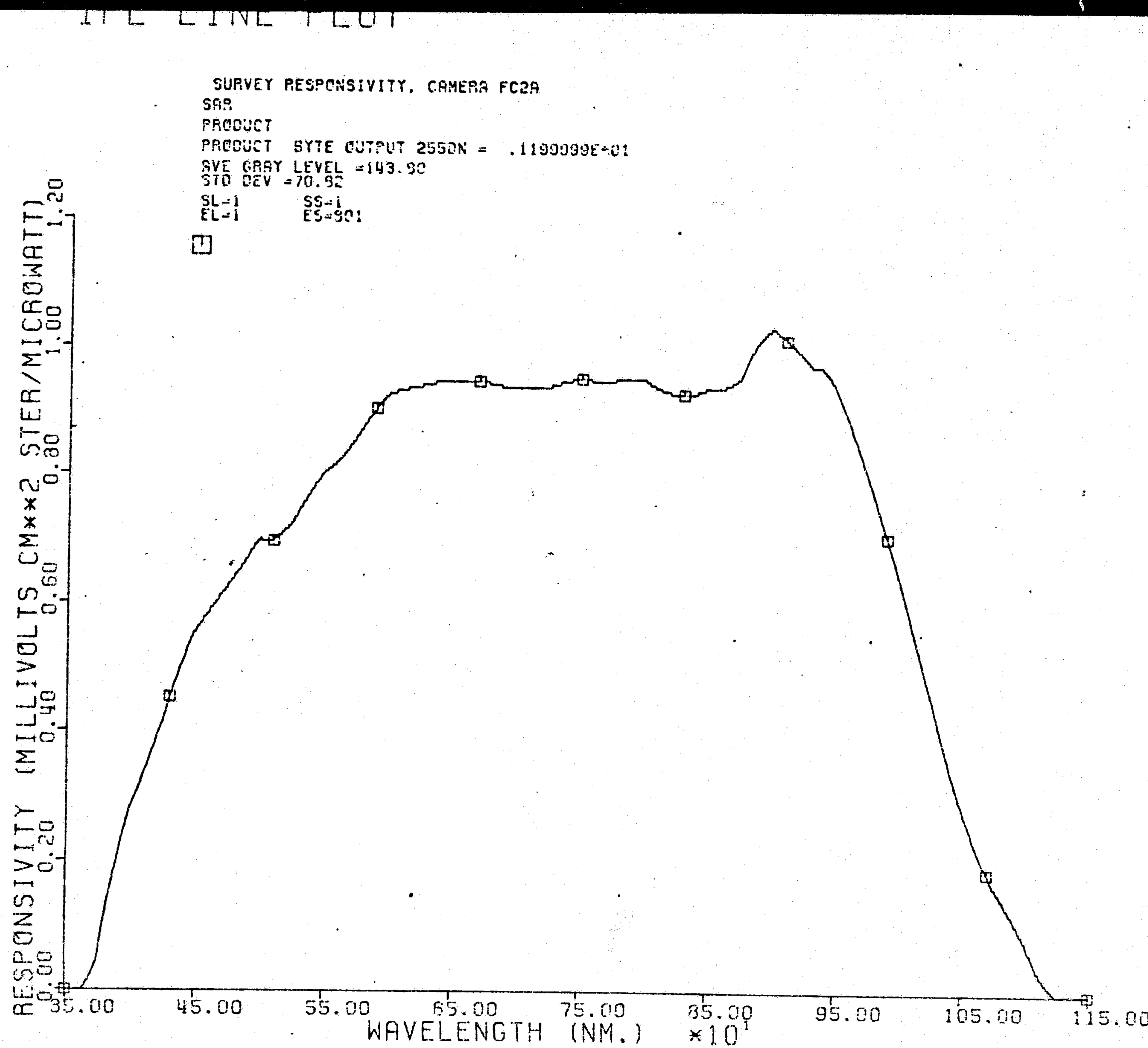
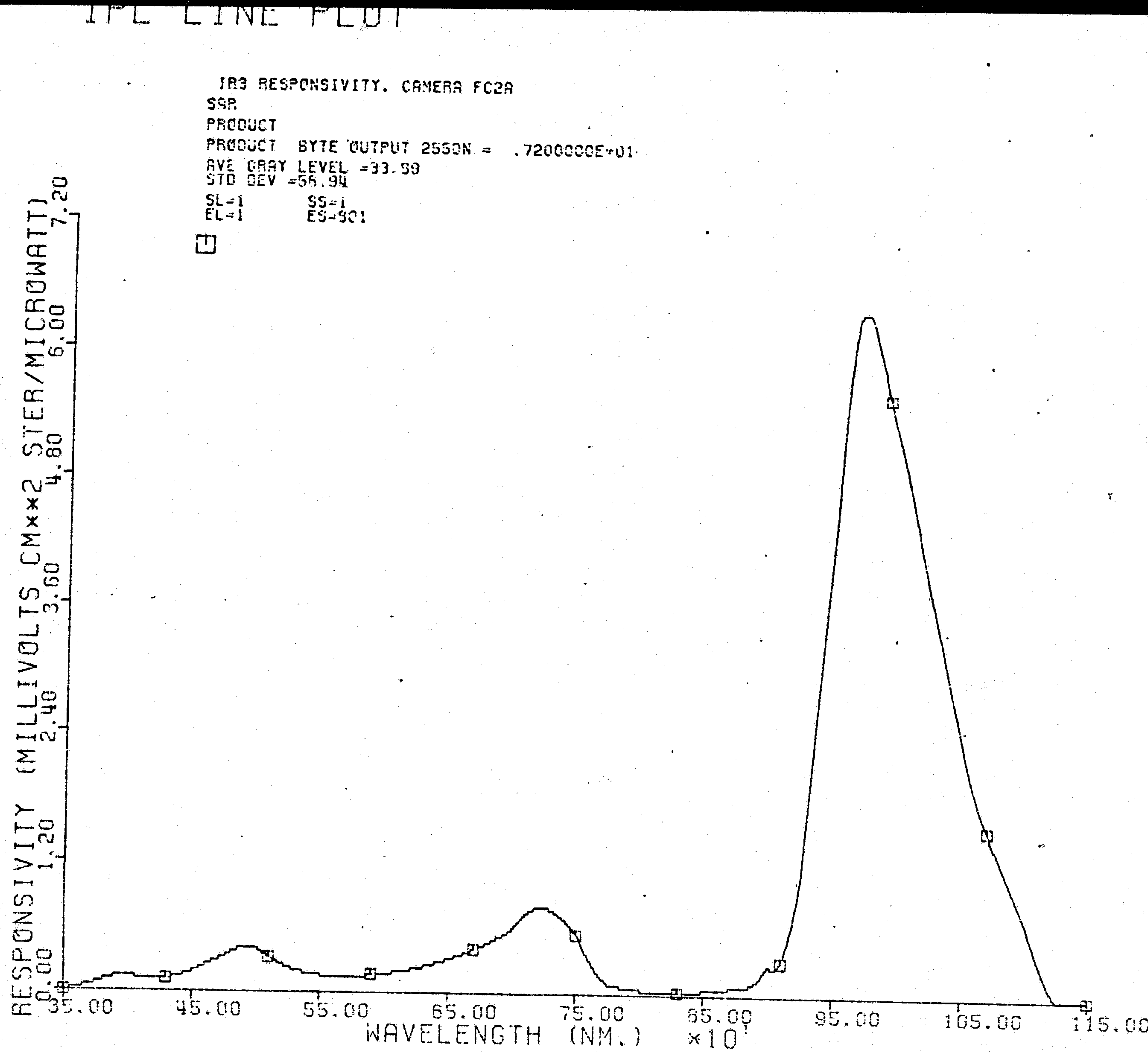
0.15
0.30
0.45
0.60
0.75
0.90
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10^1


IPL LINE PLOT
SURVEY RESPONSIVITY, CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1190000E+01
AVE GRAY LEVEL =143.90
STD DEV =70.92
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹

30


IPL LINE PLOT
IR3 RESPONSIVITY. CAMERA FC2A
SSR
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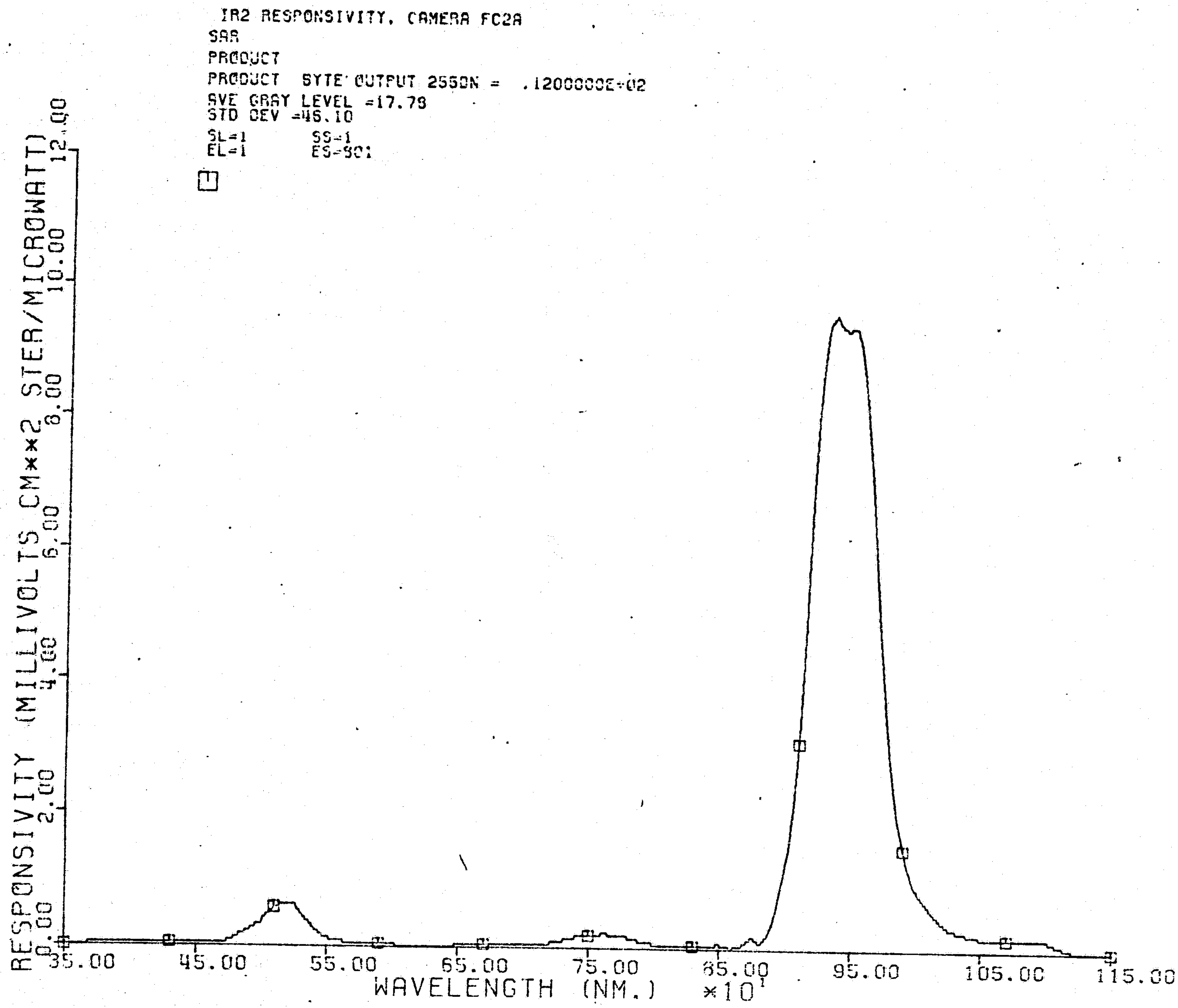
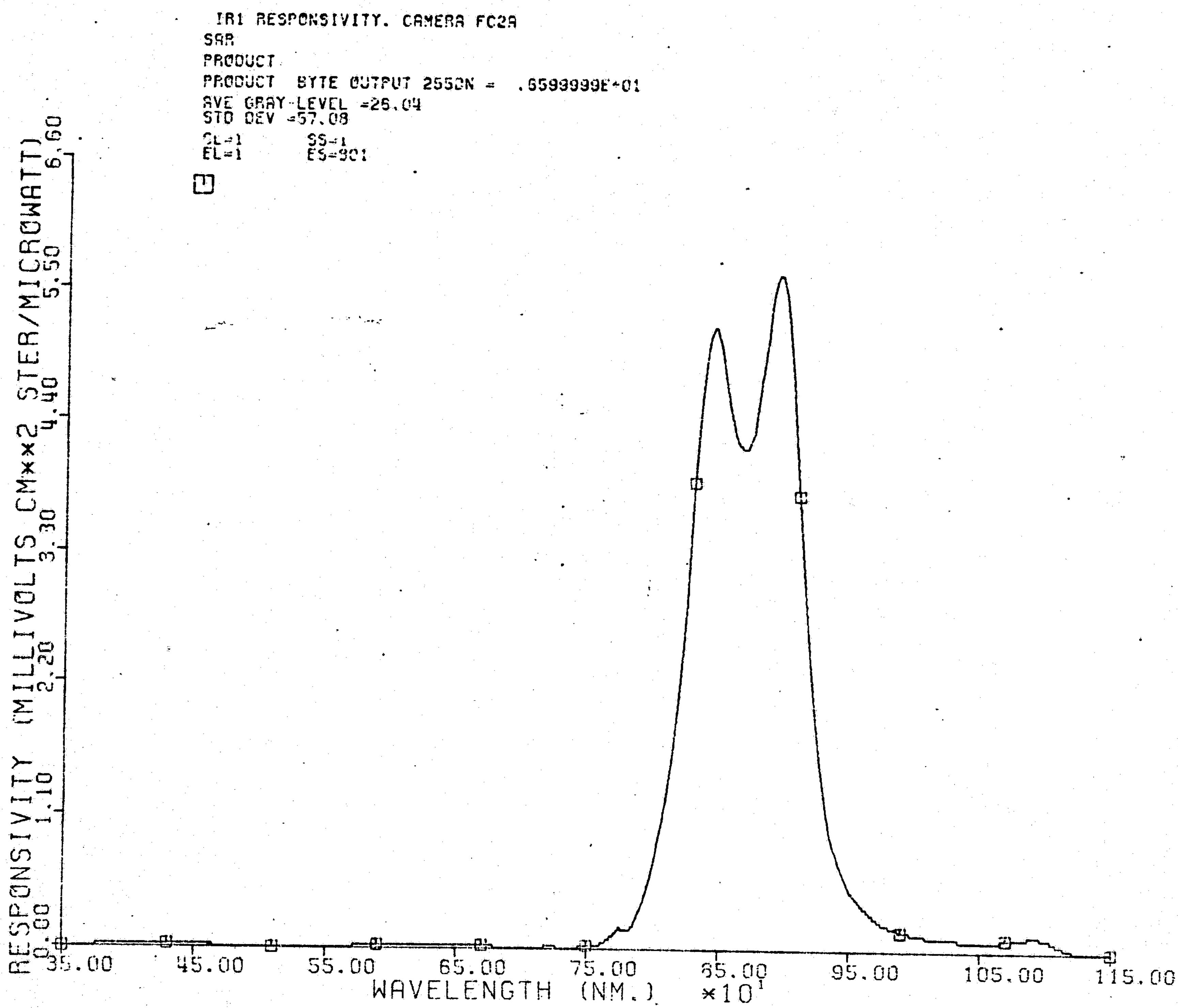
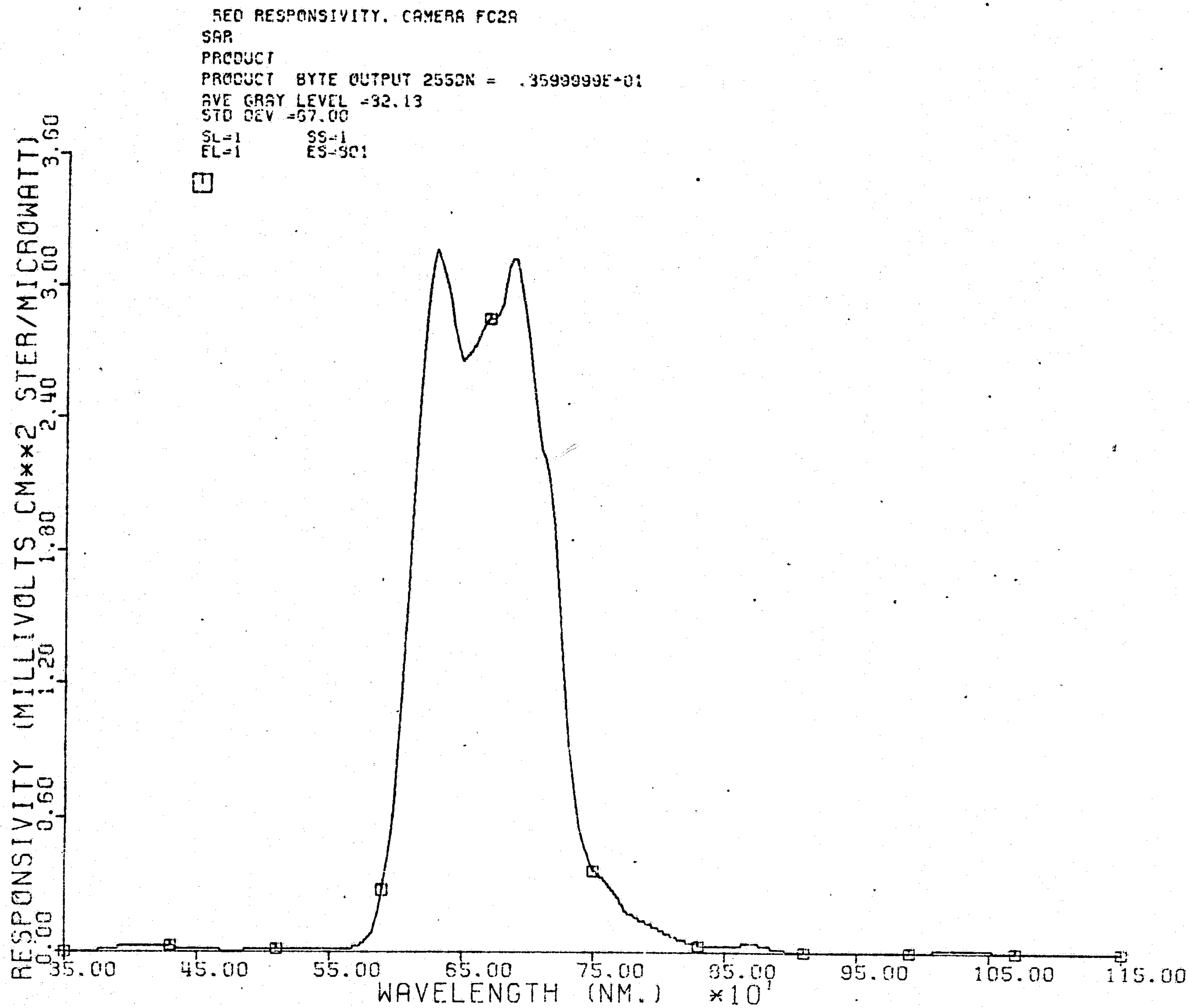
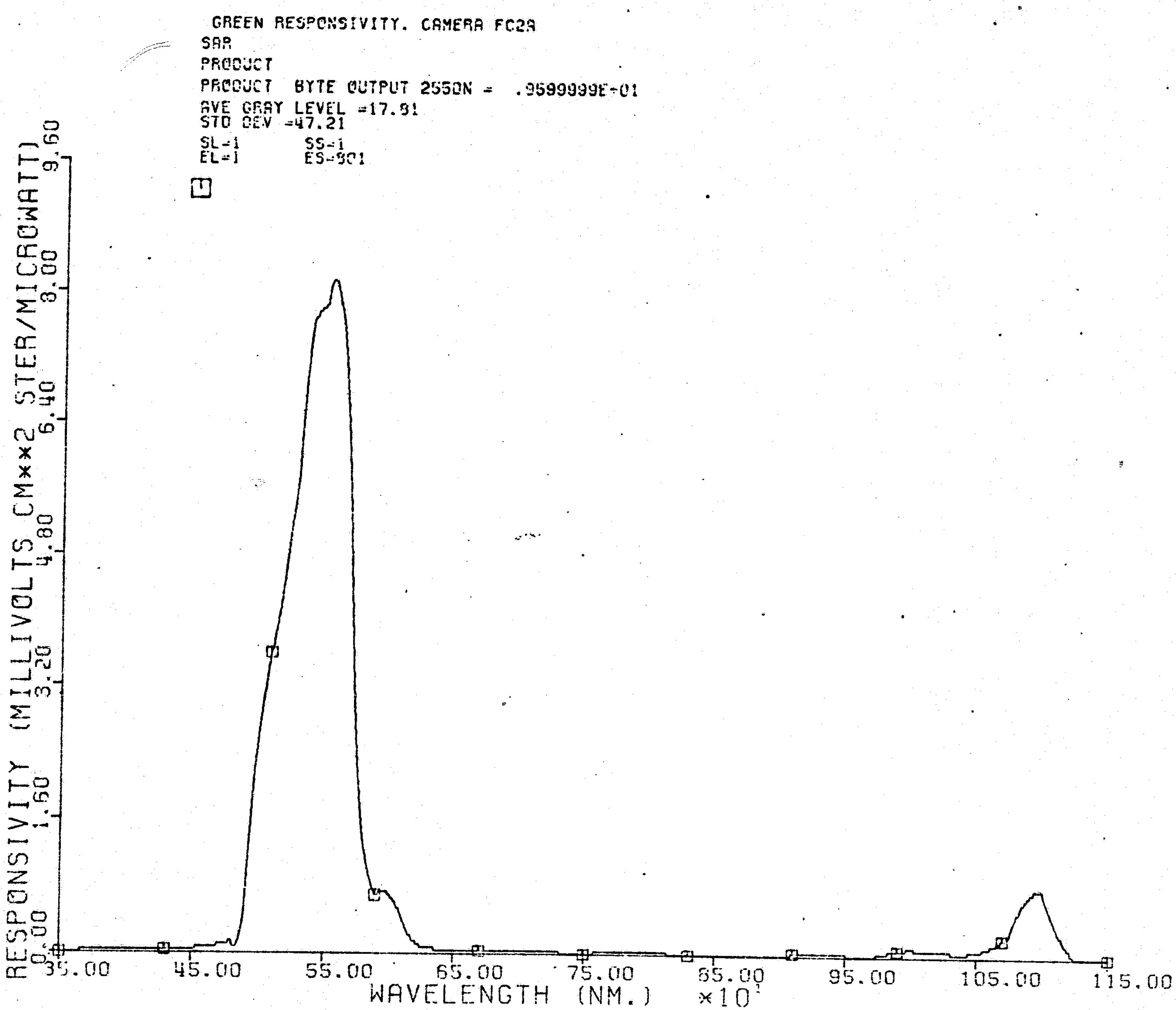
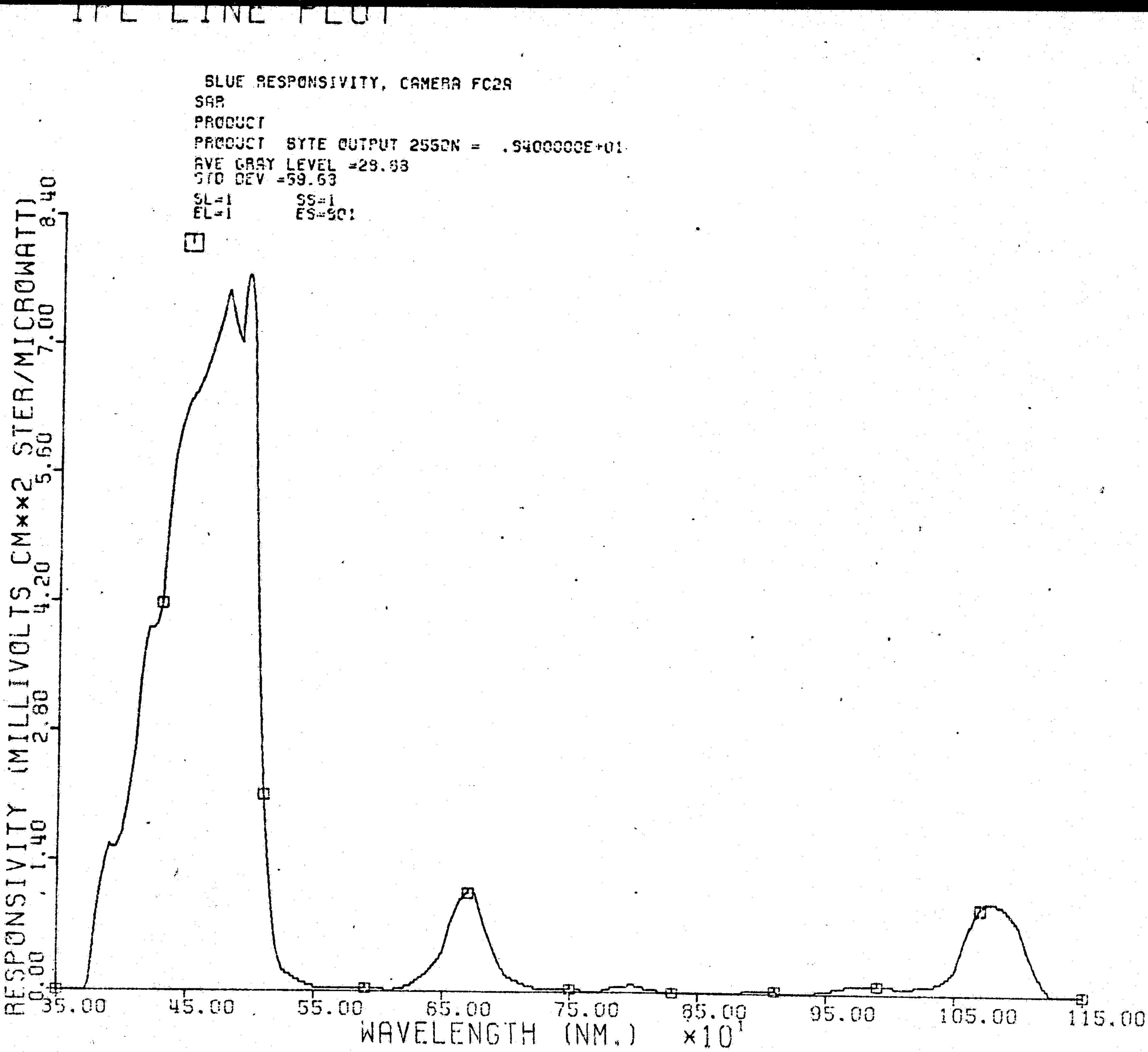
AVE GRAY LEVEL =33.98
STD DEV =56.94
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.20
2.40
3.60
4.80
6.00
7.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10'


IR2 RESPONSIVITY, CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1200000E+02
AVE GRAY LEVEL =17.78
STD DEV =46.10
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10¹

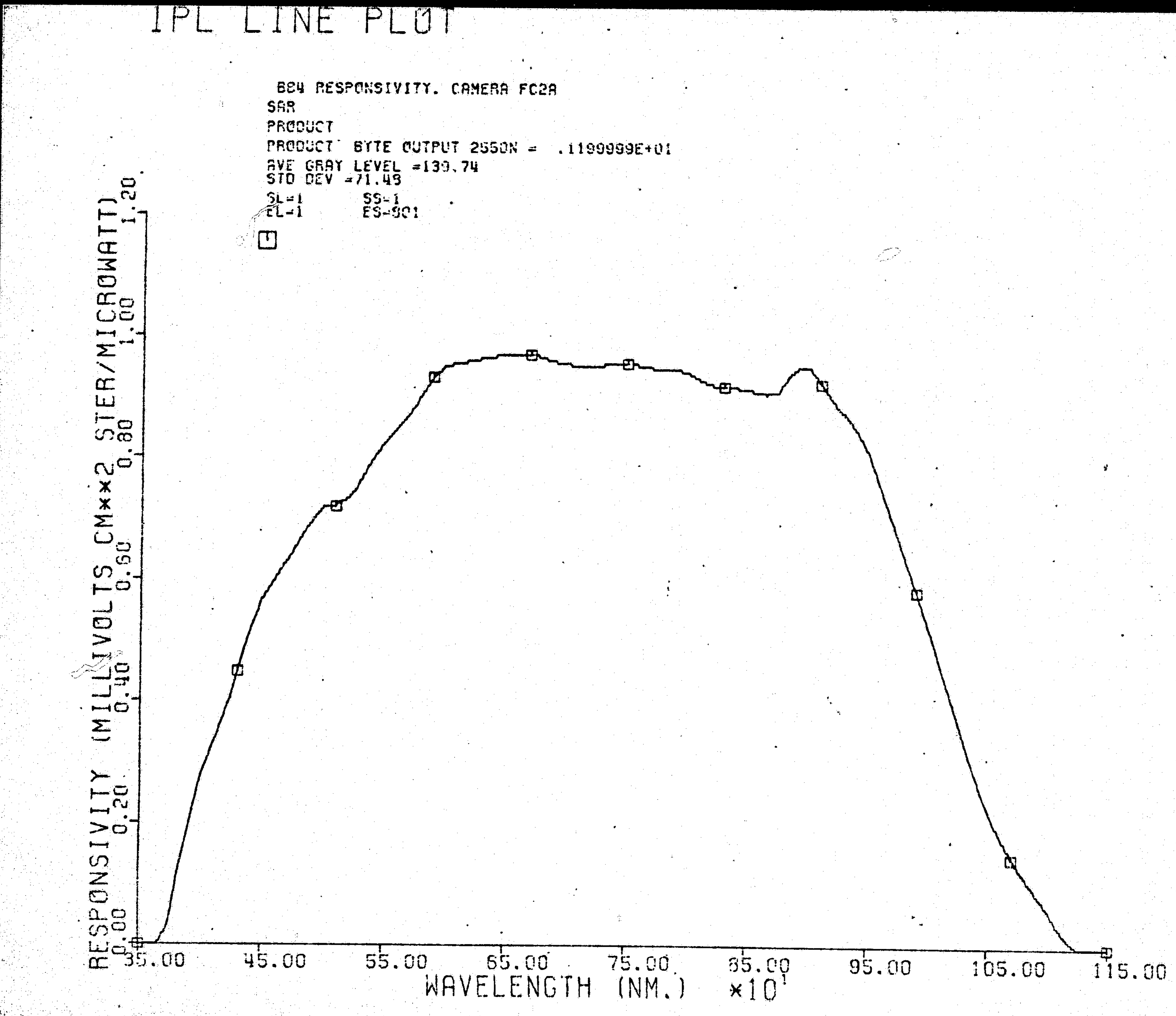

IR1 RESPONSIVITY. CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .6599999E+01
AVE GRAY-LEVEL =26.04
STD DEV =57.08
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.10
2.20
3.30
4.40
5.50
6.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10^1

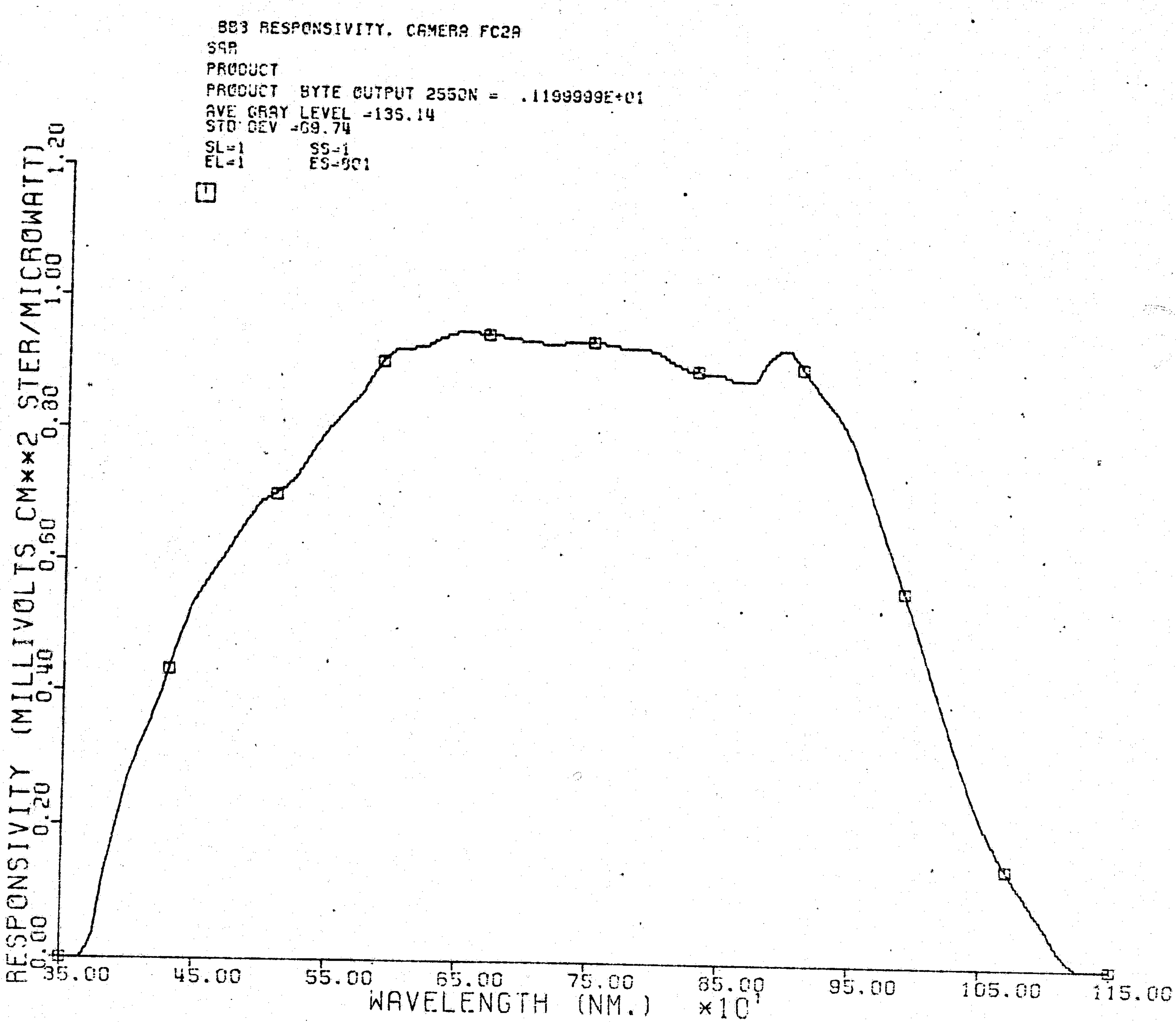

RED RESPONSIVITY. CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .3599999E+01
AVE GRAY LEVEL =32.13
STD DEV =67.00
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.60
1.20
1.80
2.40
3.00
3.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10'

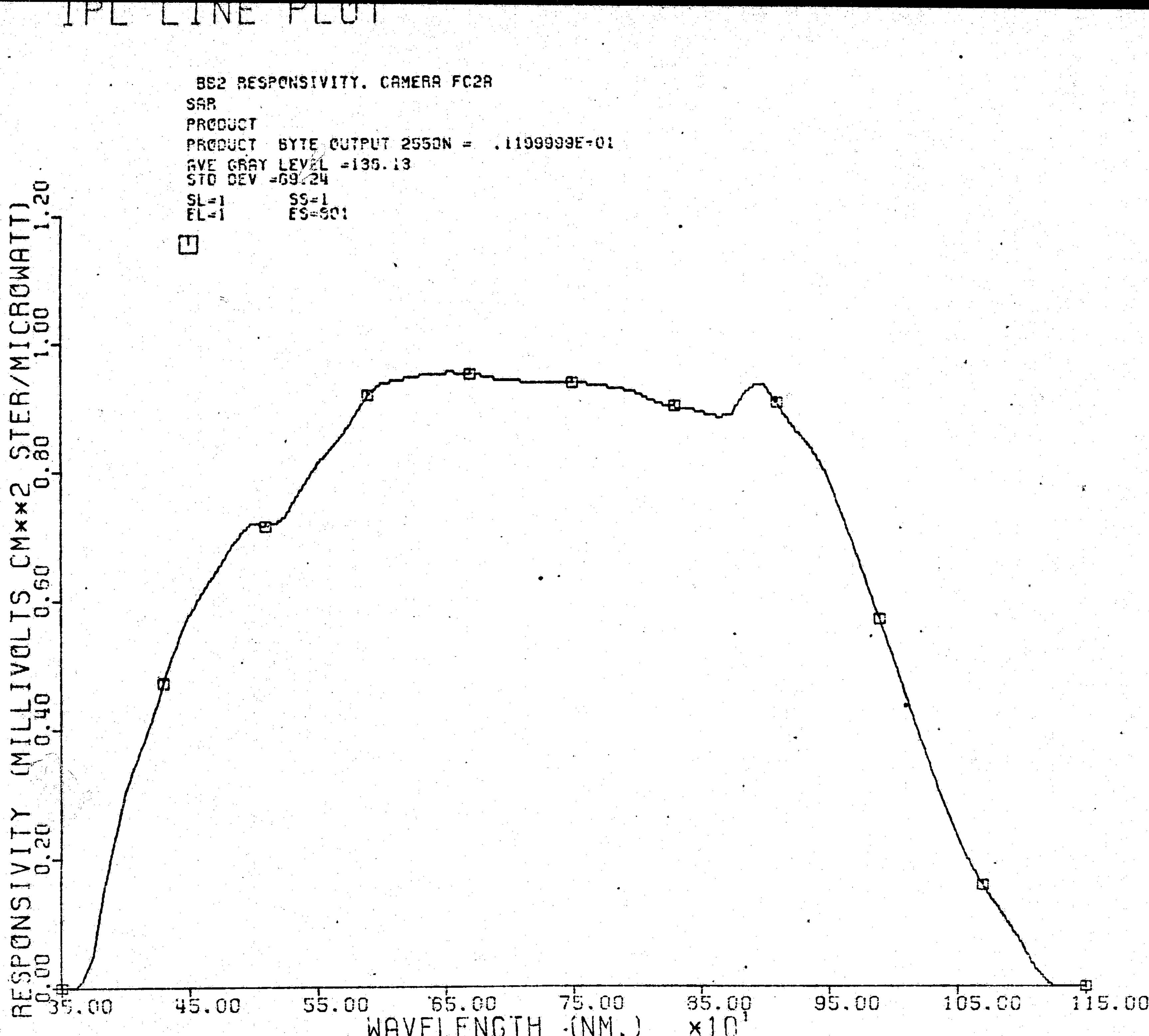

GREEN RESPONSIVITY. CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .9599999E+01
AVE GRAY LEVEL =17.91
STD DEV =47.21
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.60
3.20
4.80
6.40
8.00
9.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10



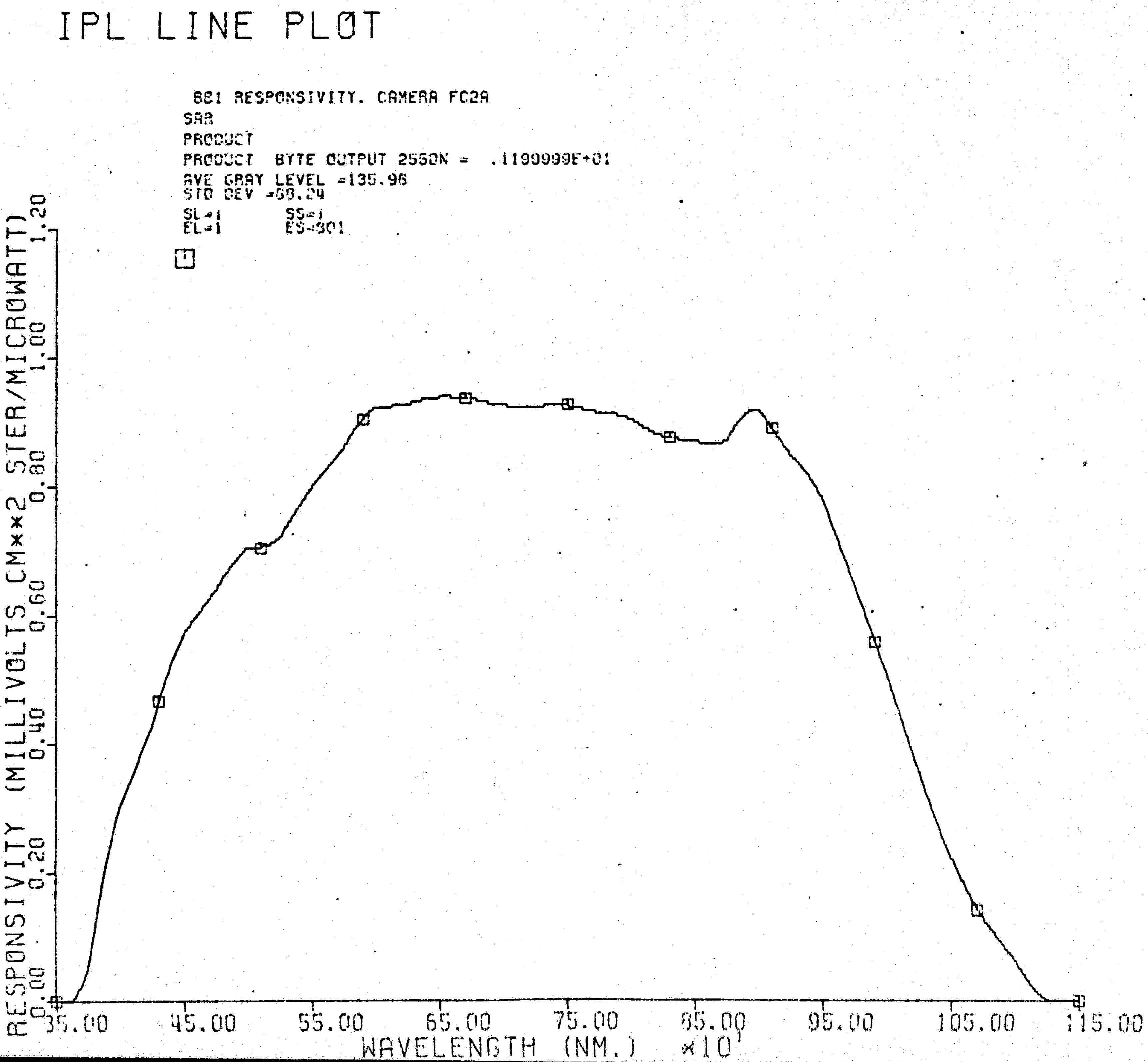
IPL LINE PLOT
BLUE RESPONSIVITY, CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .5400000E+01
AVE GRAY LEVEL =29.93
STD DEV =59.63
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.40
2.80
4.20
5.60
7.00
8.40
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10[1]


IPL LINE PLOT
B24 RESPONSIVITY. CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255ON = .1199999E+01
AVE GRAY LEVEL =139.74
STD DEV =71.49
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹


BB3 RESPONSIVITY, CAMERA FC2A
SSA
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =135.14
STD DEV =69.74
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10



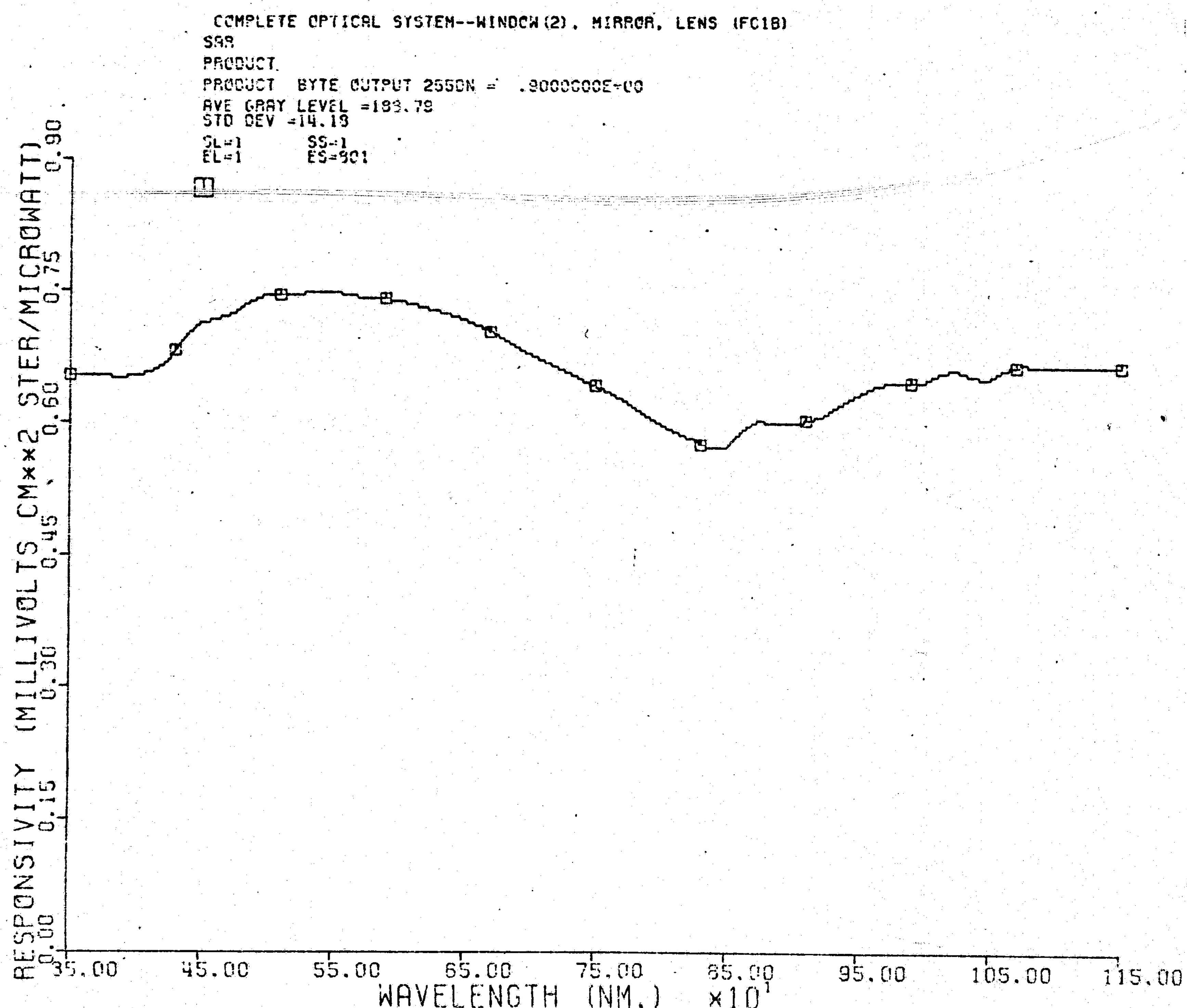
IPL LINE PLOT
BB2 RESPONSIVITY, CAMERA FC2A
SAA
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1109999E+01
AVE GRAY LEVEL =135.13
STD DEV =69.24
SL=1 SS=1
EL=1 ES=801
1
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) x10



IPL LINE PLOT
881 RESPONSIVITY. CAMERA FC2A
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1190999E+01
AVE GRAY LEVEL =135.96
STD DEV =68.24
SL=1 SS=1
EL=1 ES=301
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

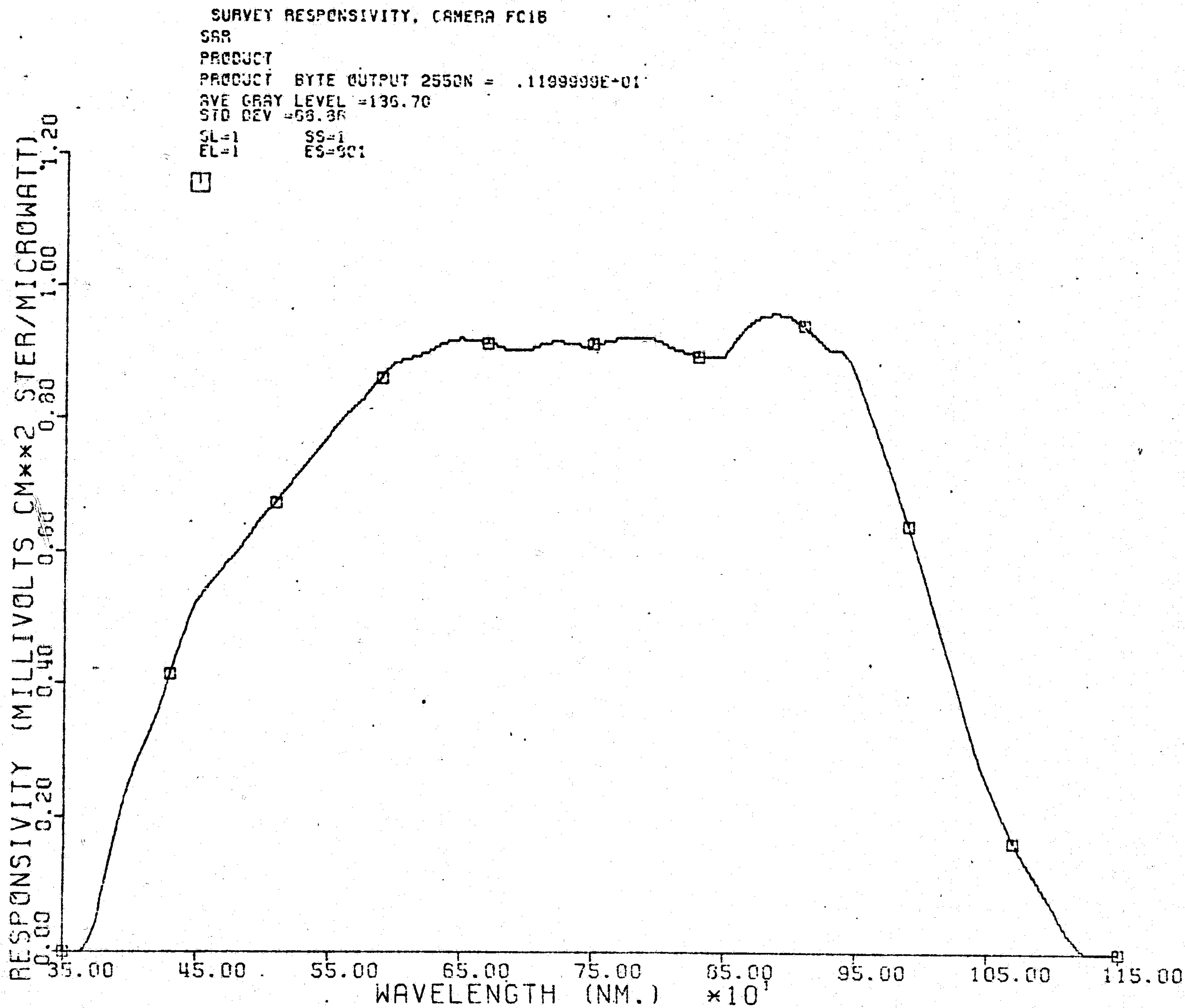
40

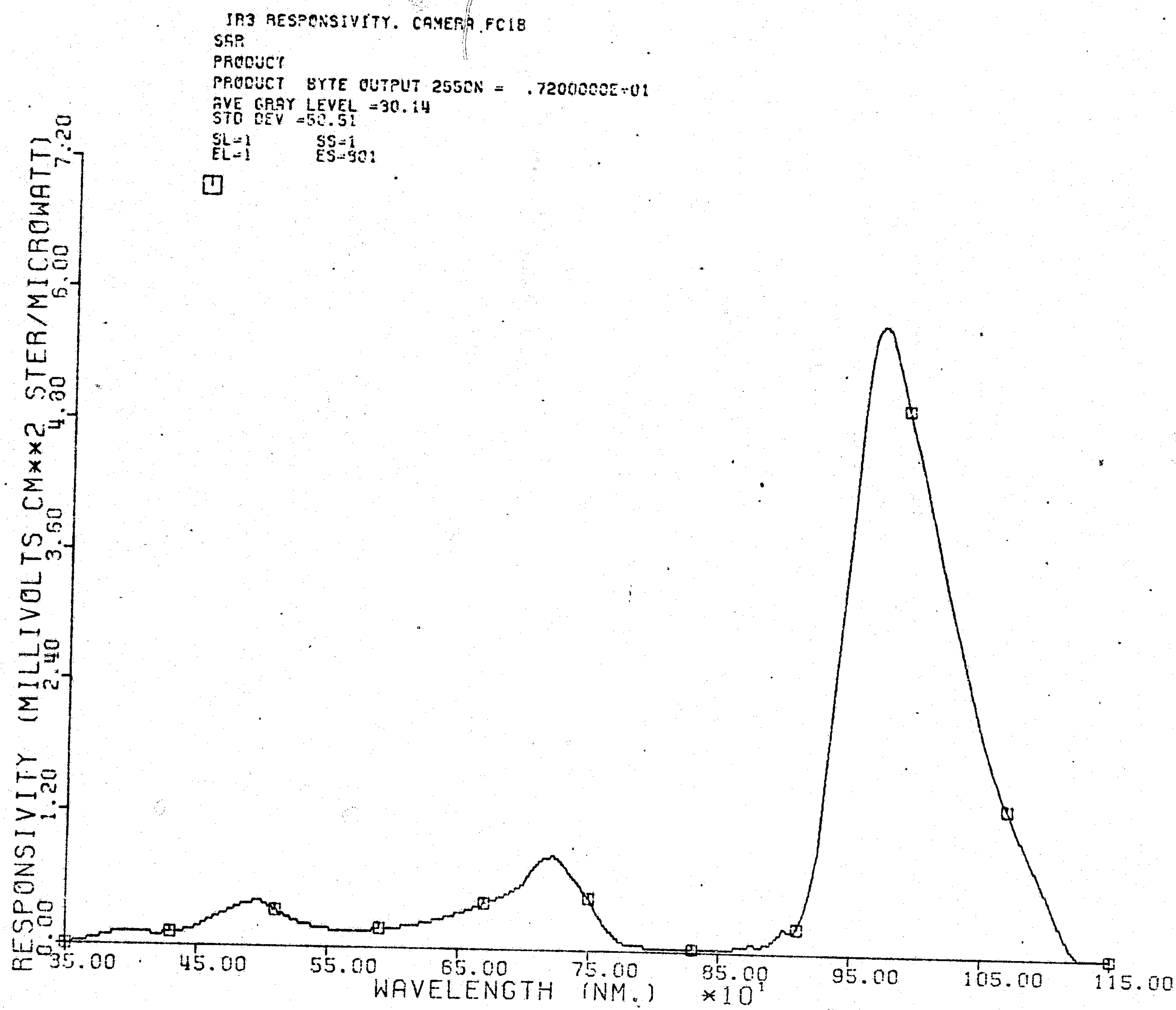
IPL LINE PLOT



//

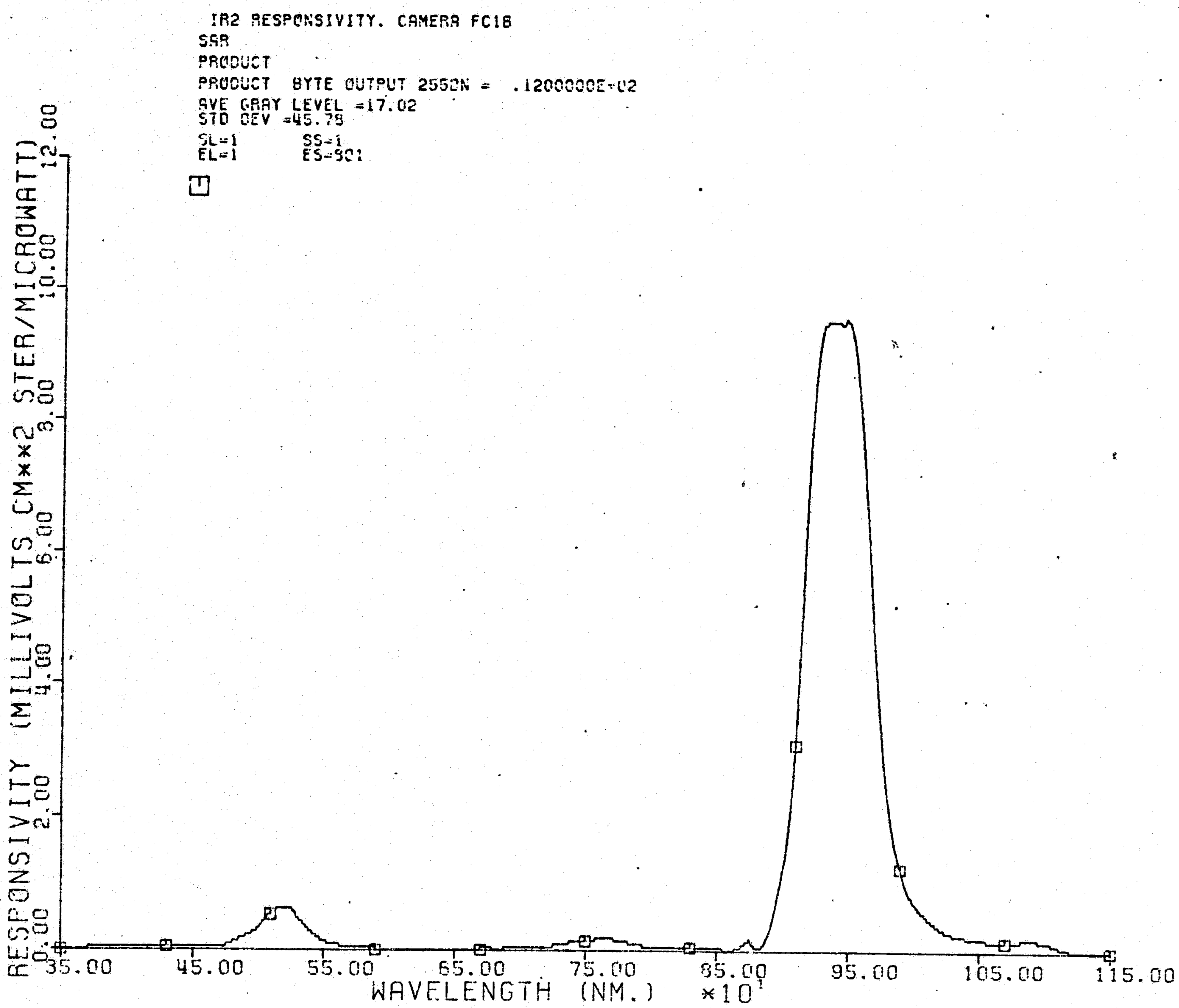
41


SURVEY RESPONSIVITY, CAMERA FC1B
SRR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =135.70
STD DEV =58.38
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

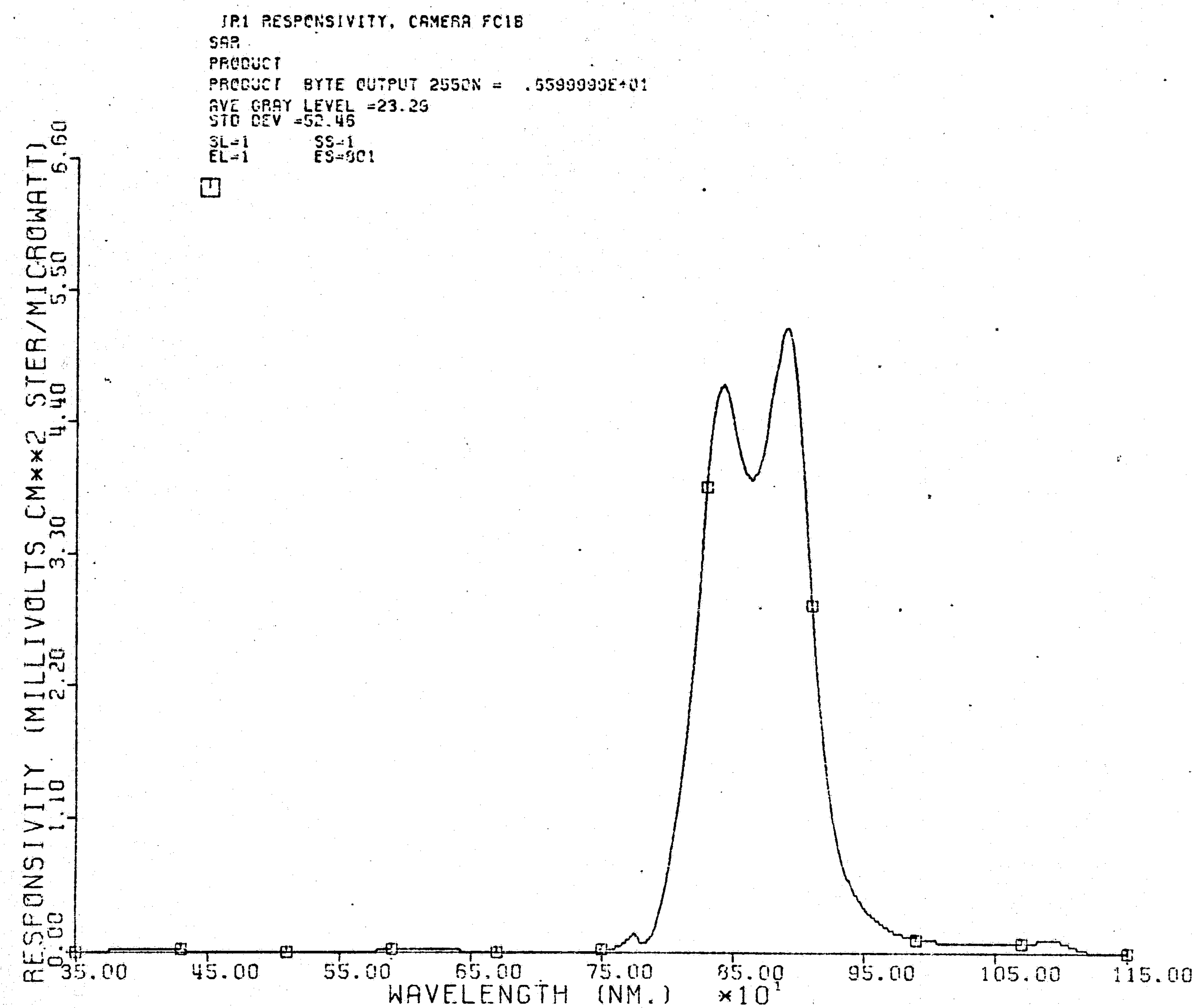


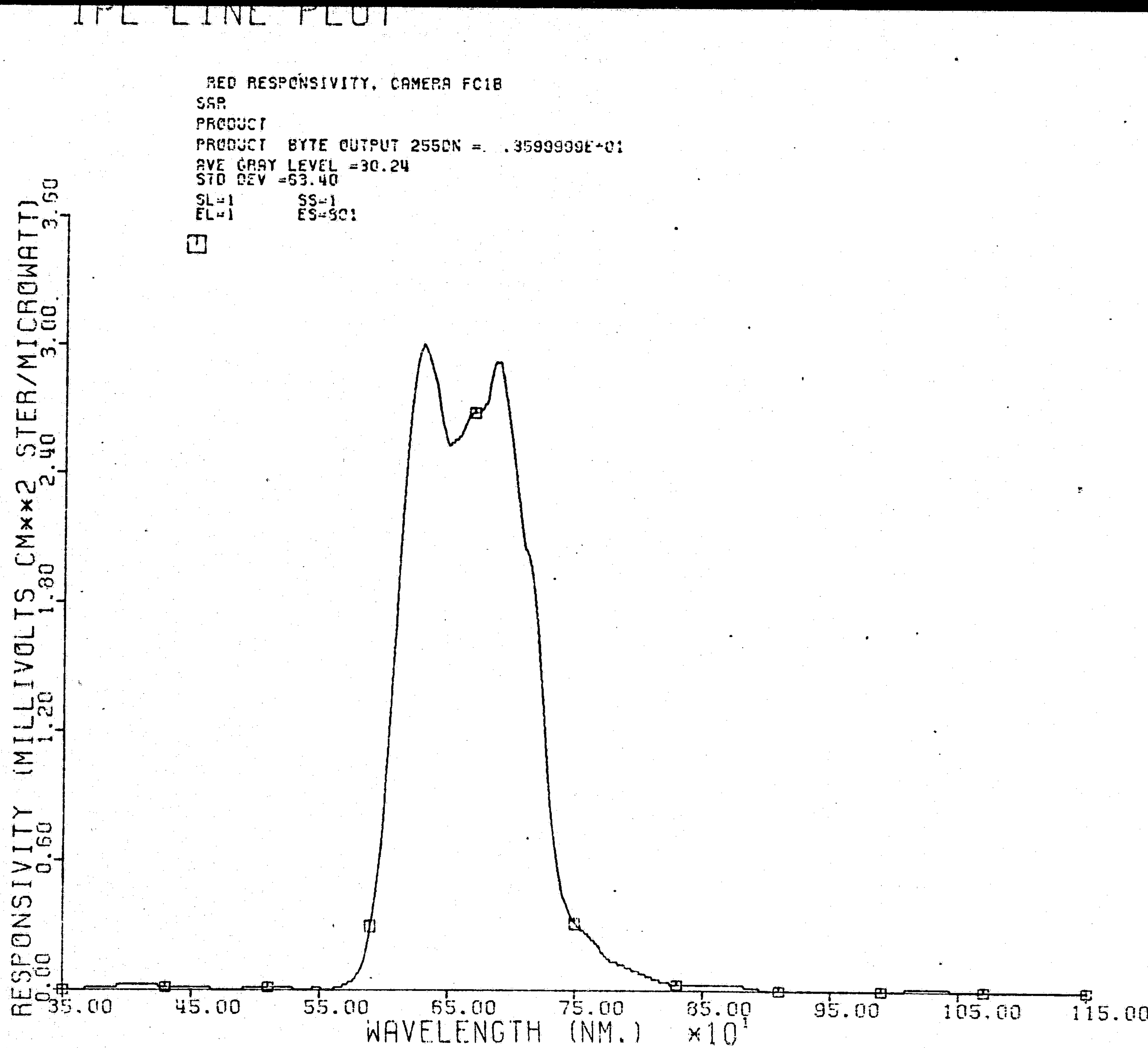
IR3 RESPONSIVITY. CAMERA FC18
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .7200000E+01
AVE GRAY LEVEL =30.14
STD DEV =50.51
SL=1 SS=1
EL=1 ES=301
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.20
2.40
3.60
4.80
6.00
7.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

43

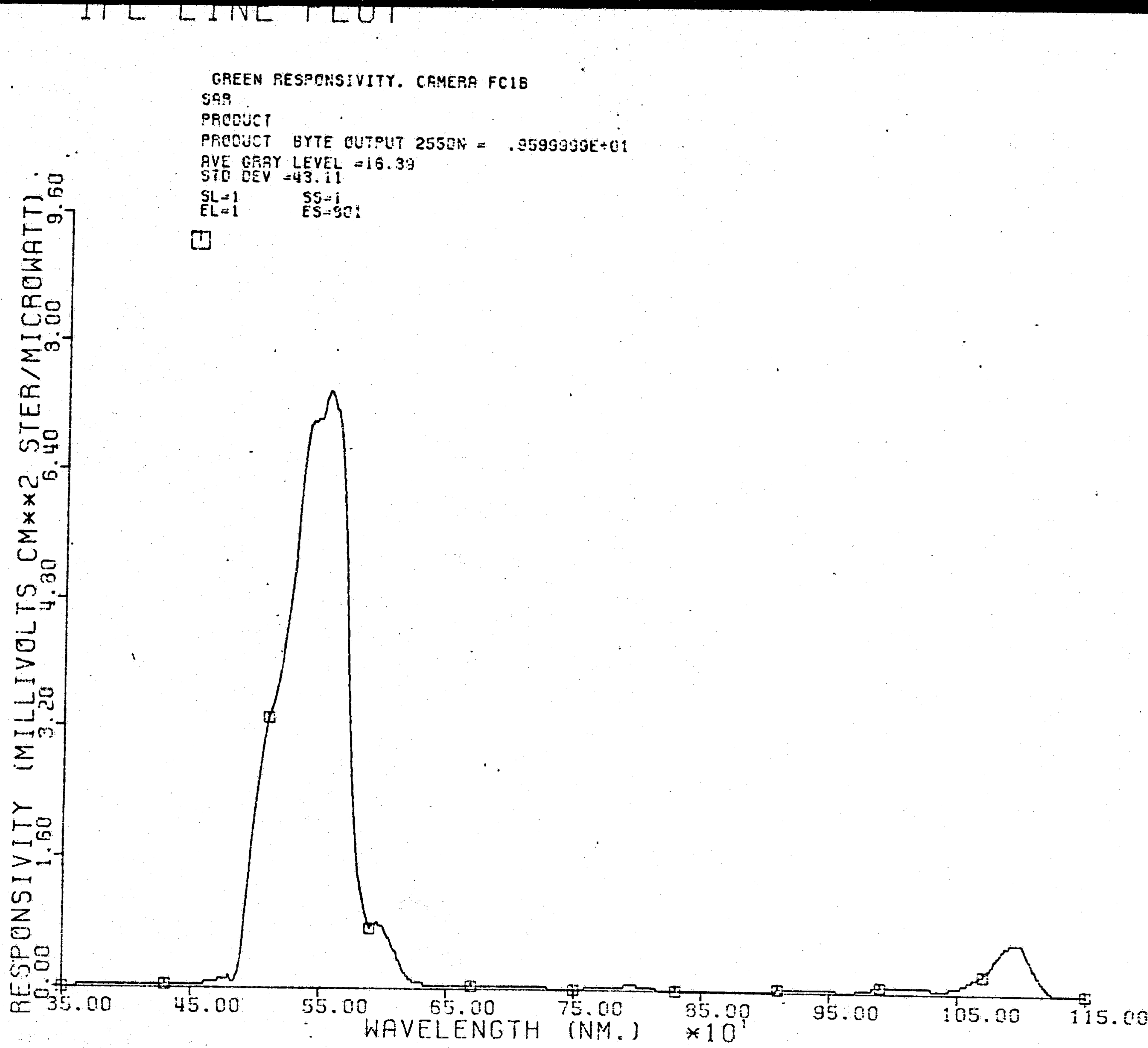


IR2 RESPONSIVITY, CAMERA FC1B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1200000E+02
AVE GRAY LEVEL =17.02
STD DEV =45.78
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

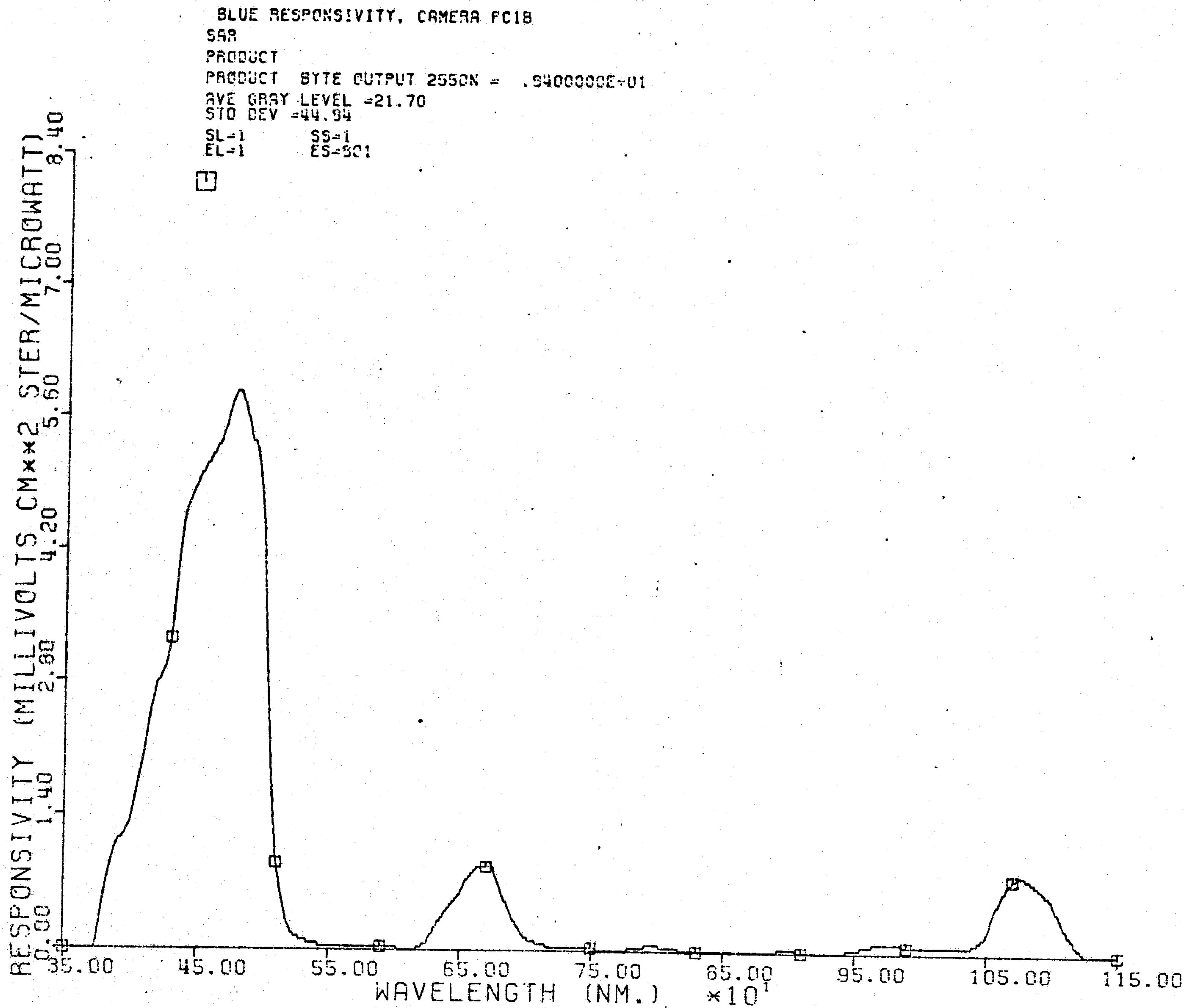

IR1 RESPONSIVITY, CAMERA FC18
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .5599990E+01
AVE GRAY LEVEL =23.29
STD DEV =52.46
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.10
2.20
3.30
4.40
5.50
6.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹



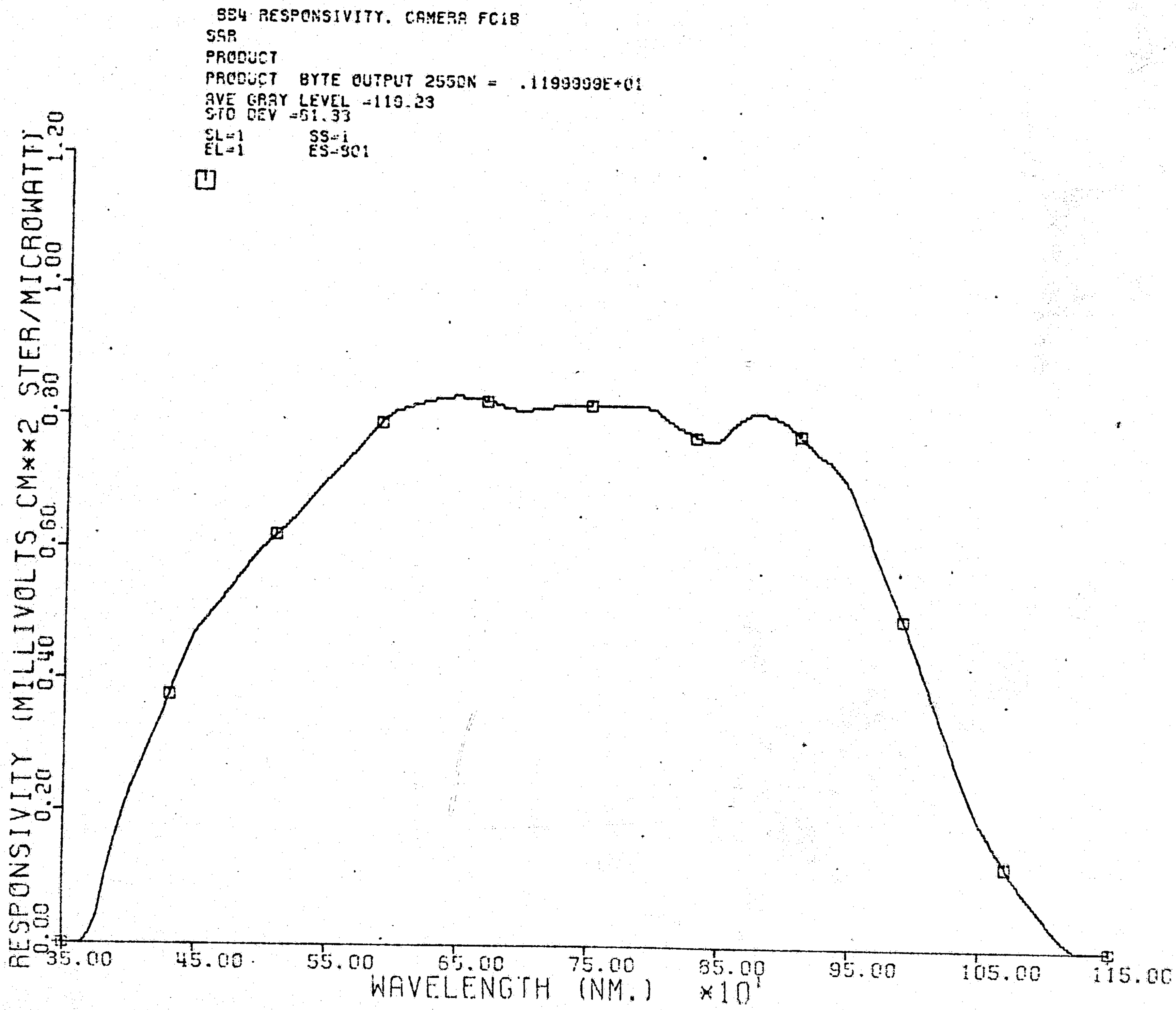
IPL LINE PLOT
RED RESPONSIVITY, CAMERA FC1B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .3599999E-01
AVE GRAY LEVEL =30.24
STD DEV =63.40
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.60
1.20
1.80
2.40
3.00
3.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10

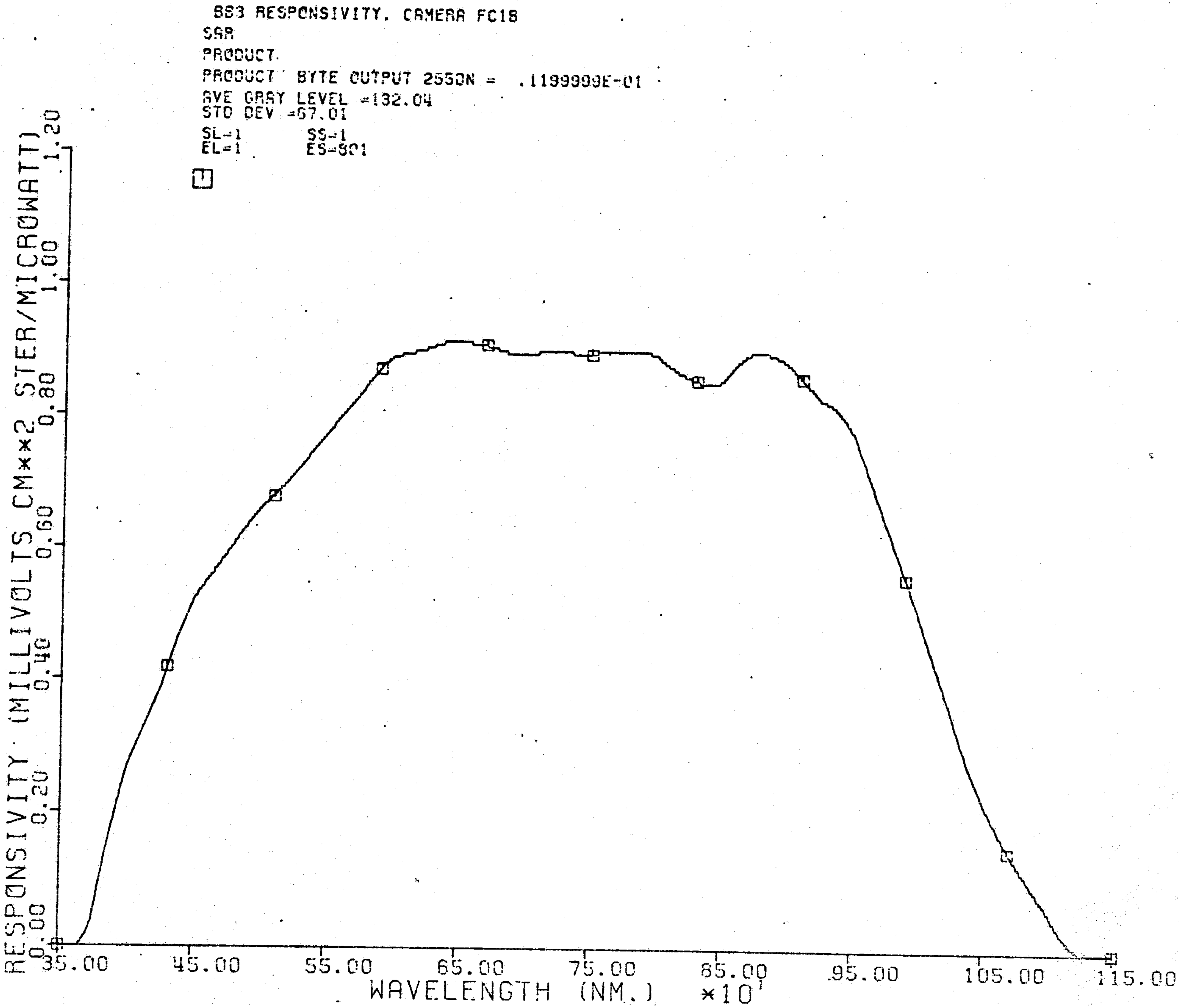


GREEN RESPONSIVITY. CAMERA FC1B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .9599999E+01
AVE GRAY LEVEL =16.39
STD DEV =43.11
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.60
3.20
4.80
6.40
8.00
9.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

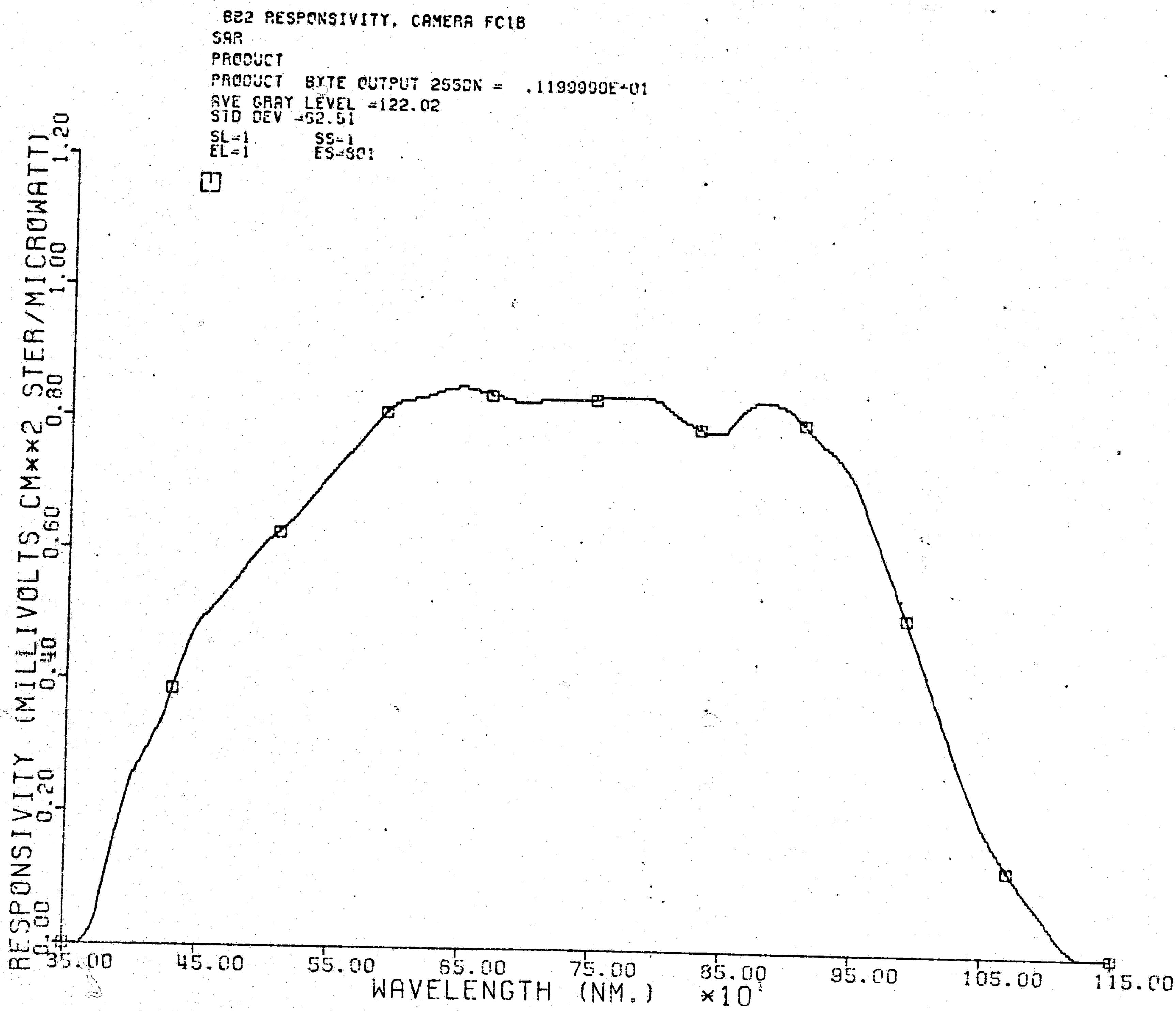

BLUE RESPONSIVITY, CAMERA FC1B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .9400000E+01
AVE GRAY LEVEL =21.70
STD DEV =44.94
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.40
2.80
4.20
5.60
7.00
8.40
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10^1

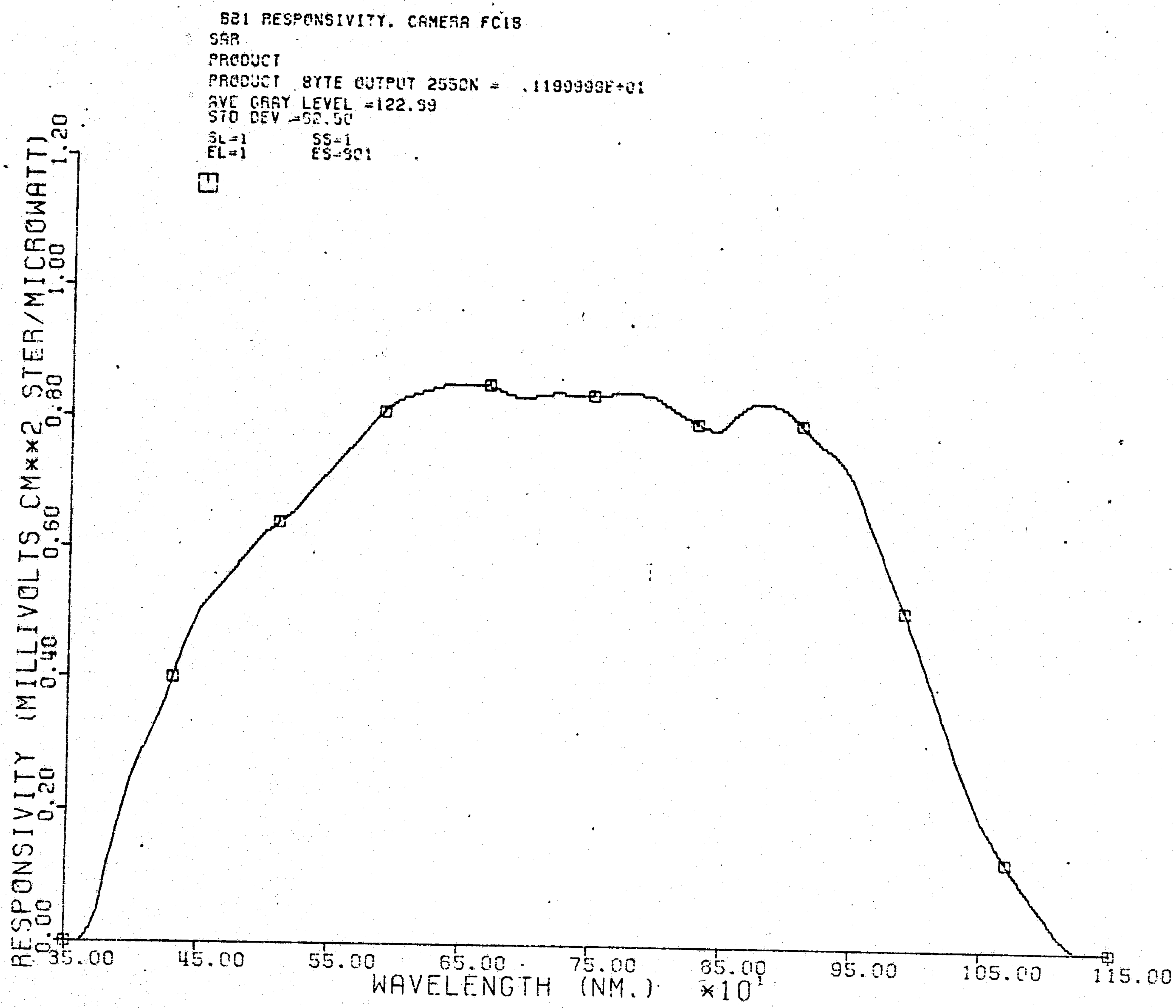
IPL LINE PLOT





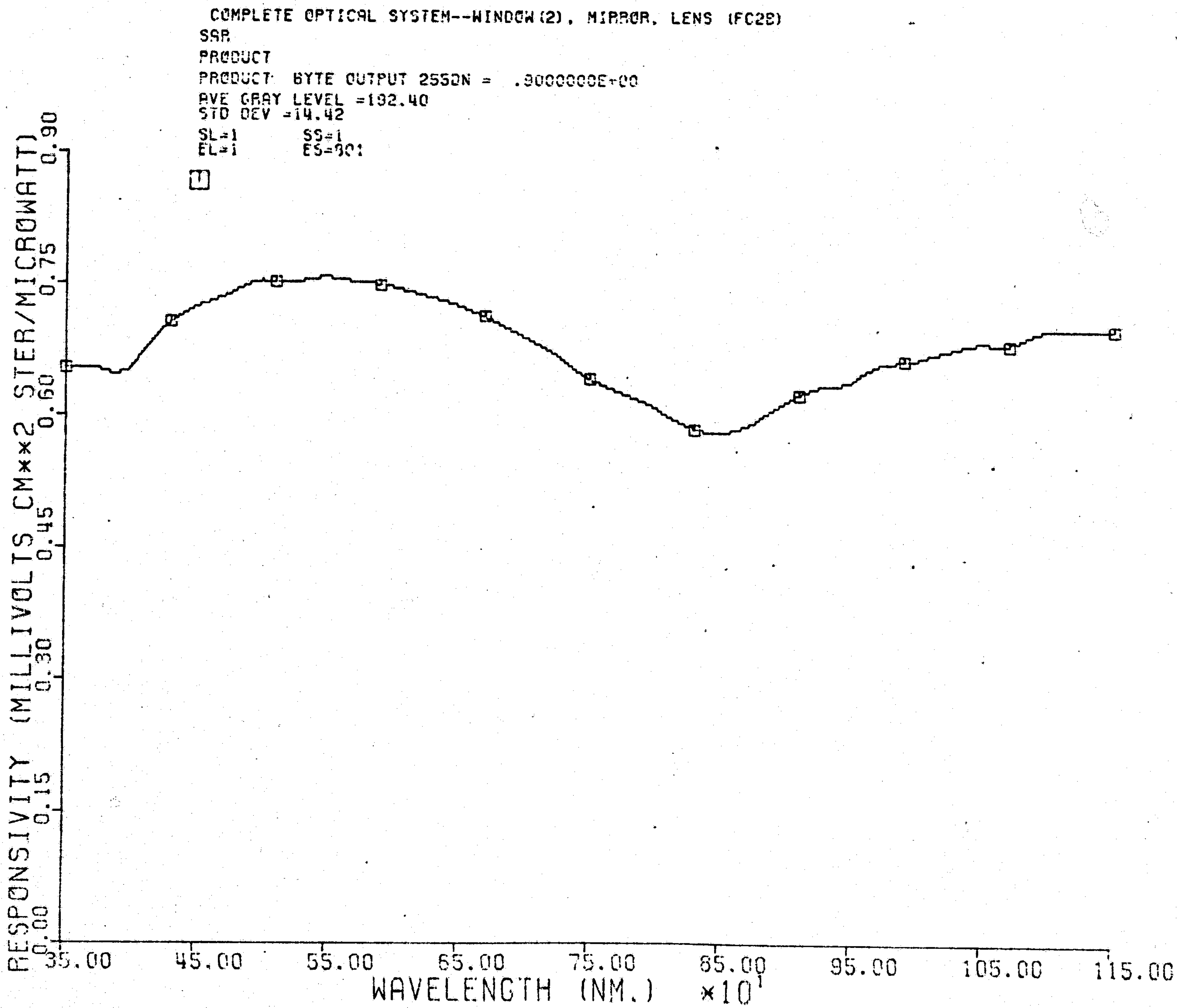
BB3 RESPONSIVITY. CAMERA FC18
SAR
PRODUCT.
PRODUCT BYTE OUTPUT 255DN = .1199999E-01
AVE GRAY LEVEL =132.04
STD DEV =67.01
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

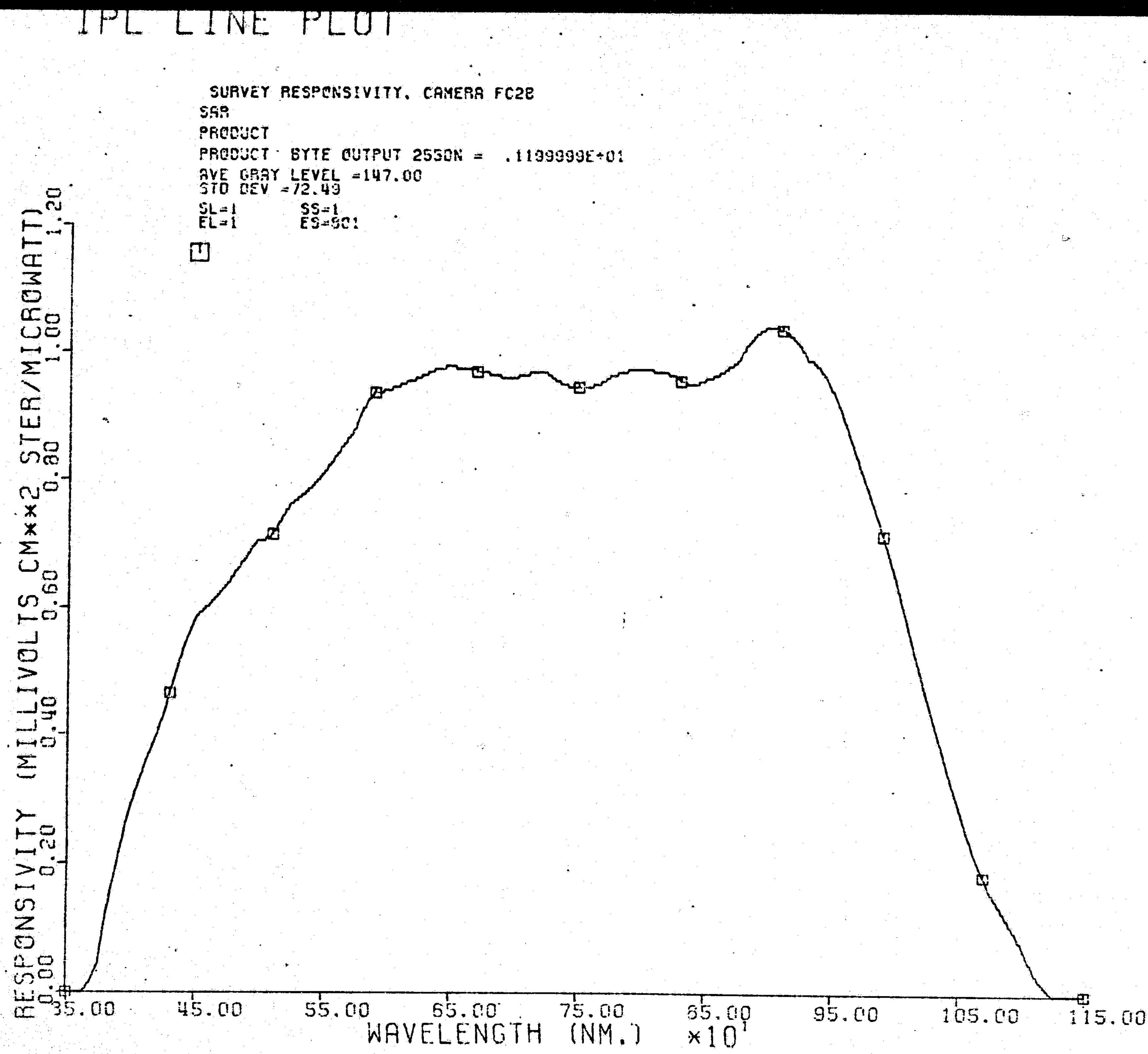

882 RESPONSIVITY, CAMERA FC1B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199990E-01
AVE GRAY LEVEL =122.02
STD DEV =62.51
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

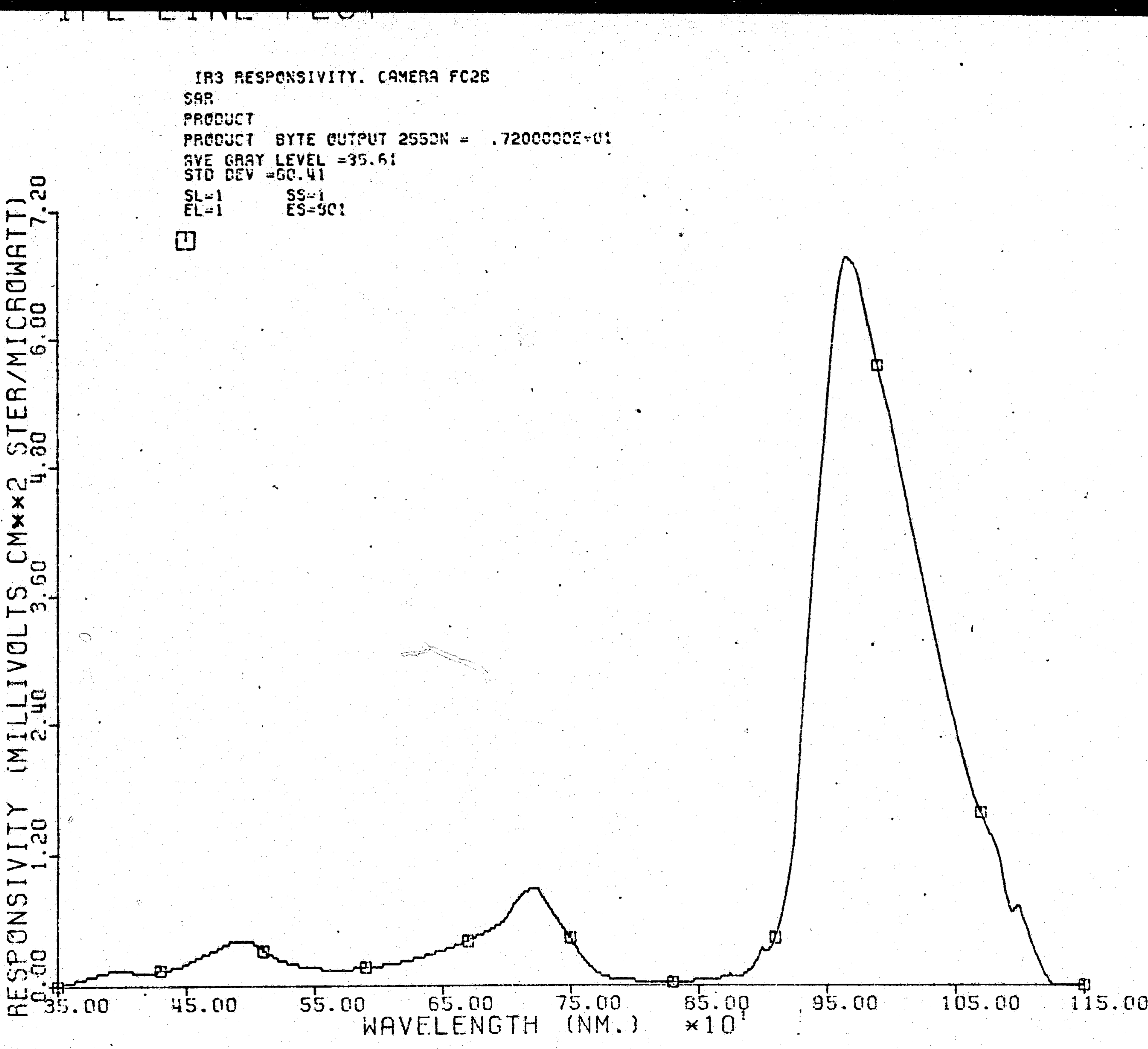


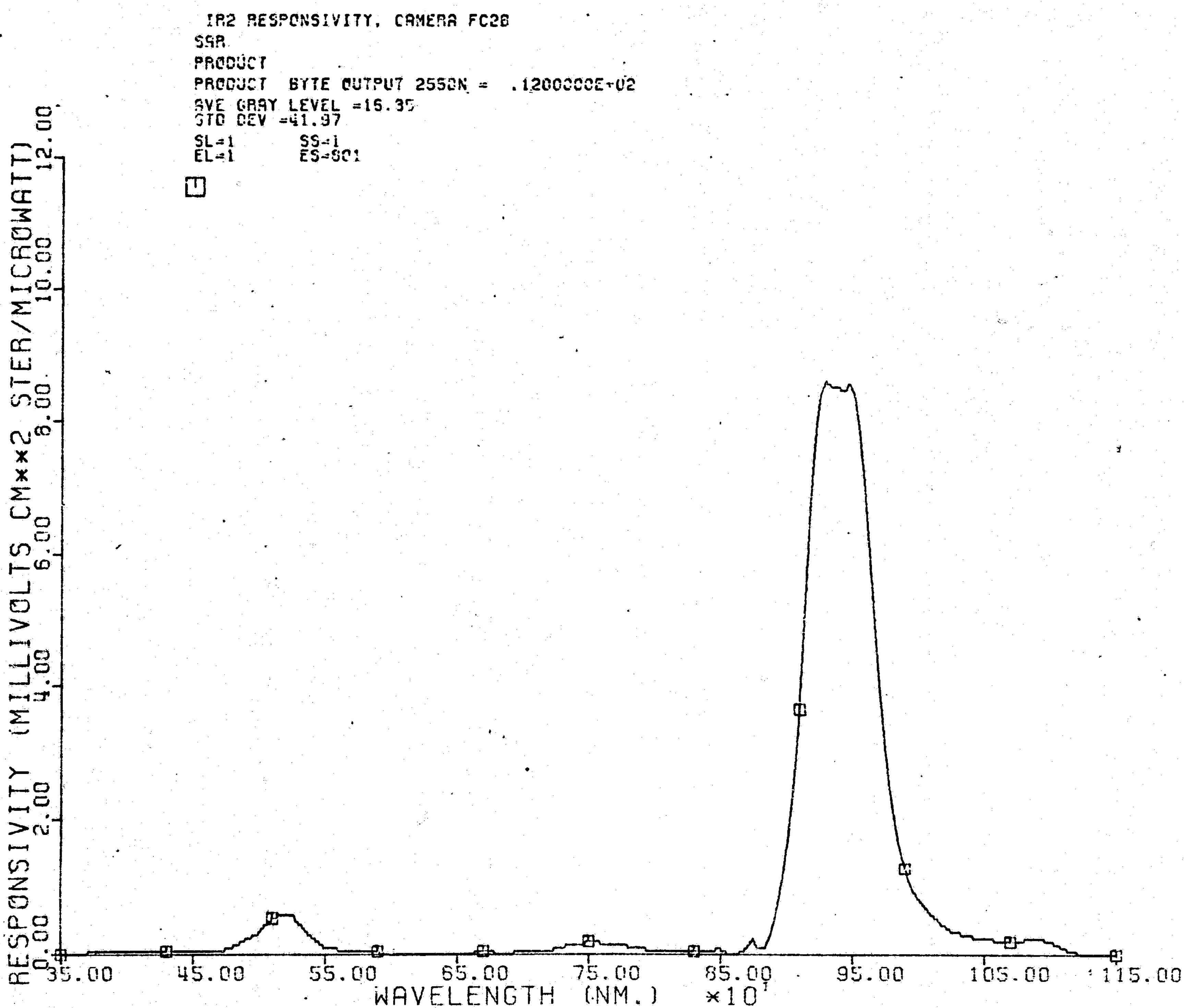
B21 RESPONSIVITY, CAMERA FC18
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =122.99
STD DEV =52.50
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

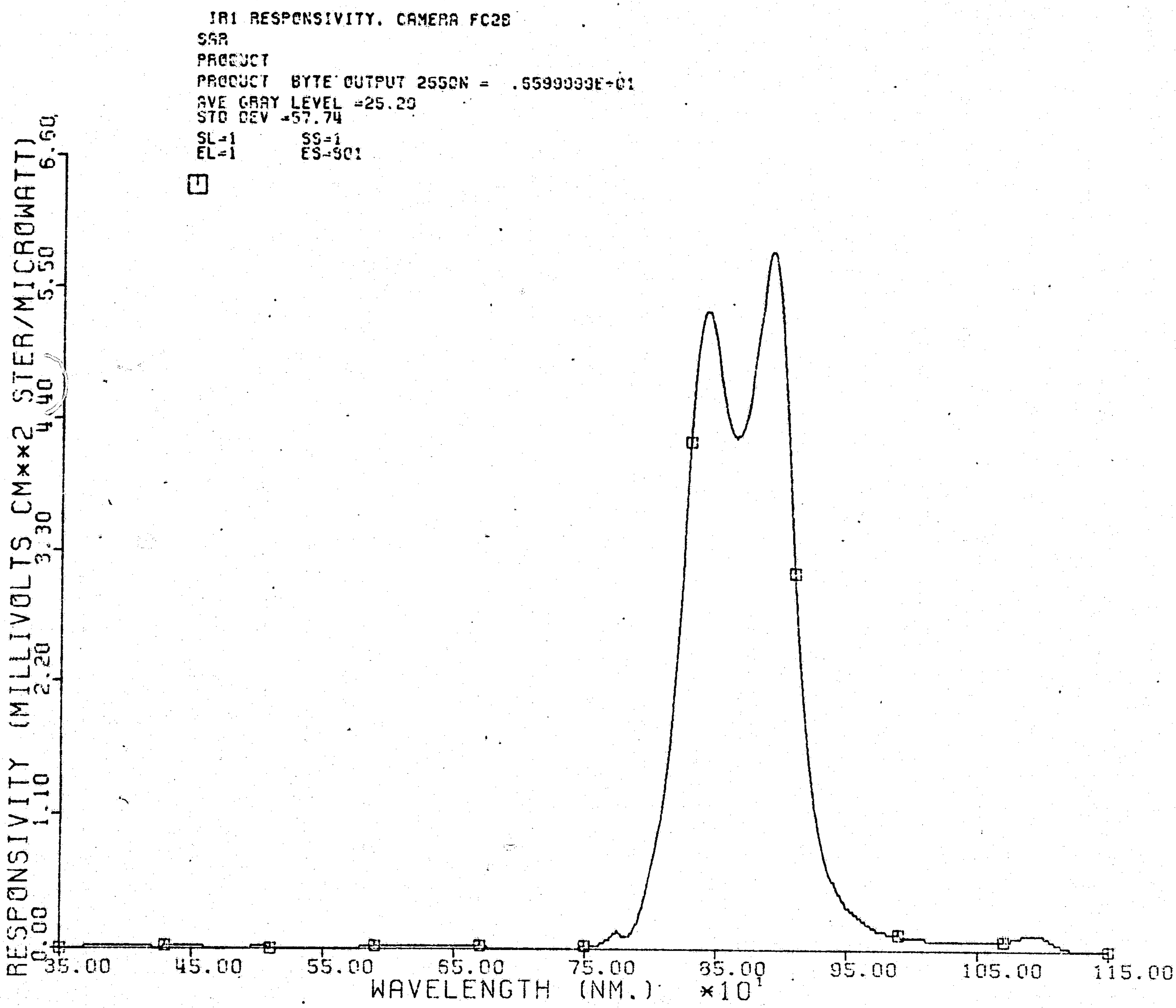
IPL LINE PLOT



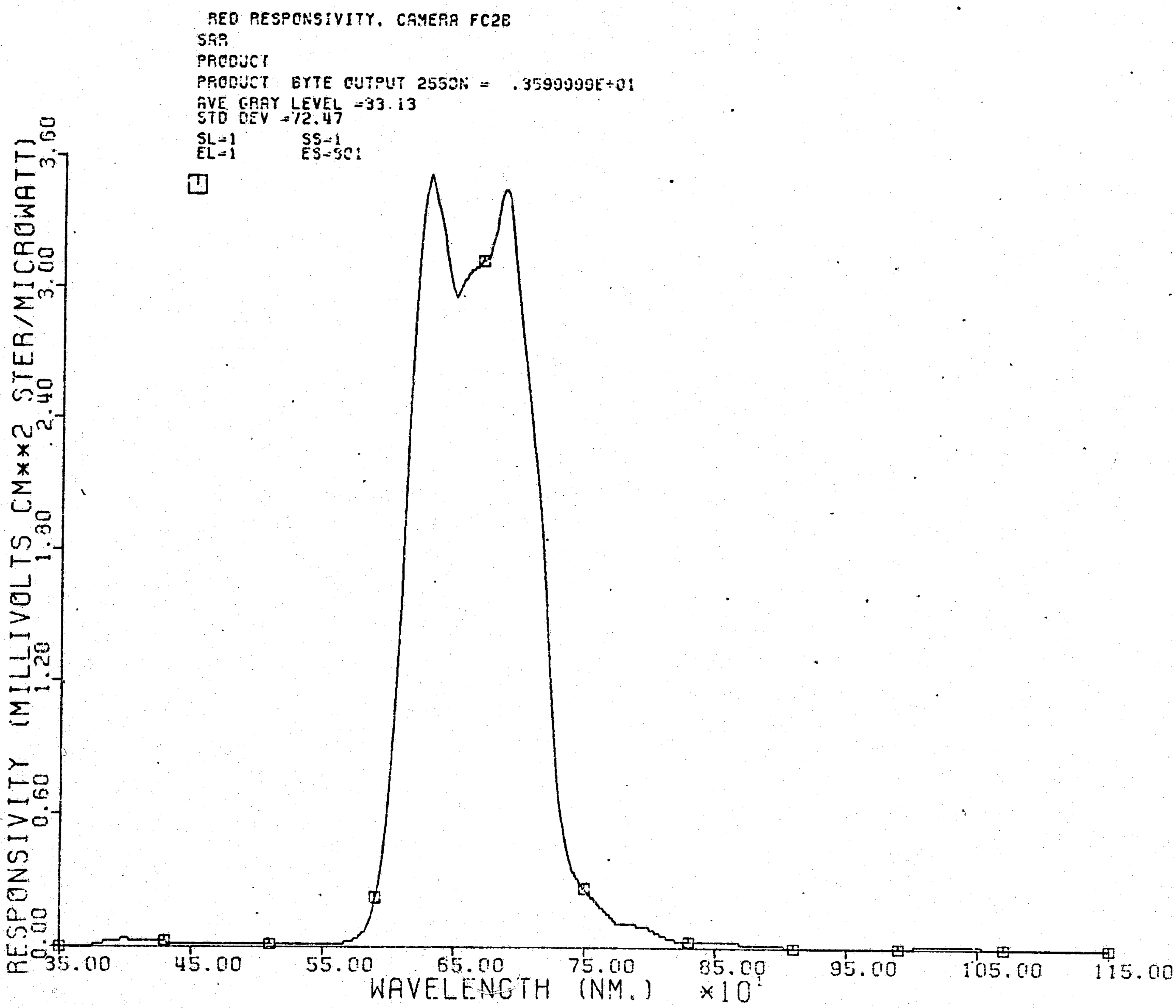

IPL LINE PLOT
SURVEY RESPONSIVITY, CAMERA FC28
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =147.00
STD DEV =72.49
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10[1]


IR3 RESPONSIVITY. CAMERA FC2B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .7200000E+01
AVE GRAY LEVEL =35.61
STD DEV =60.41
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.20
2.40
3.60
4.80
6.00
7.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10


IR2 RESPONSIVITY, CAMERA FC28
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1200000E+02
AVE GRAY LEVEL =15.35
STD DEV =41.97
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
2.00
4.00
6.00
8.00
10.00
12.00
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]

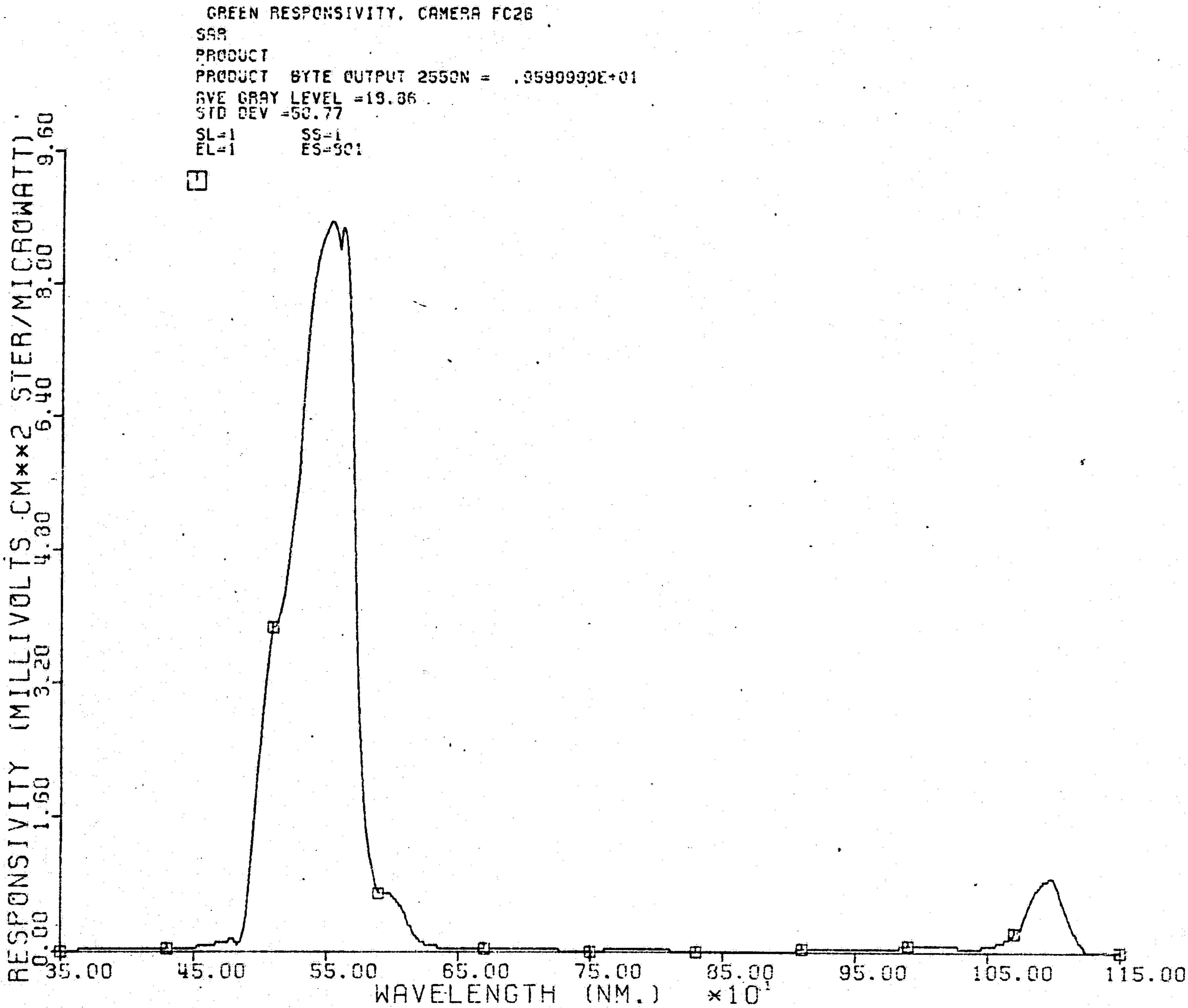


IR1 RESPONSIVITY, CAMERA FC28
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .5599999E+01
AVE GRAY LEVEL =25.29
STD DEV =57.74
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.10
2.20
3.30
4.40
5.50
6.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10¹

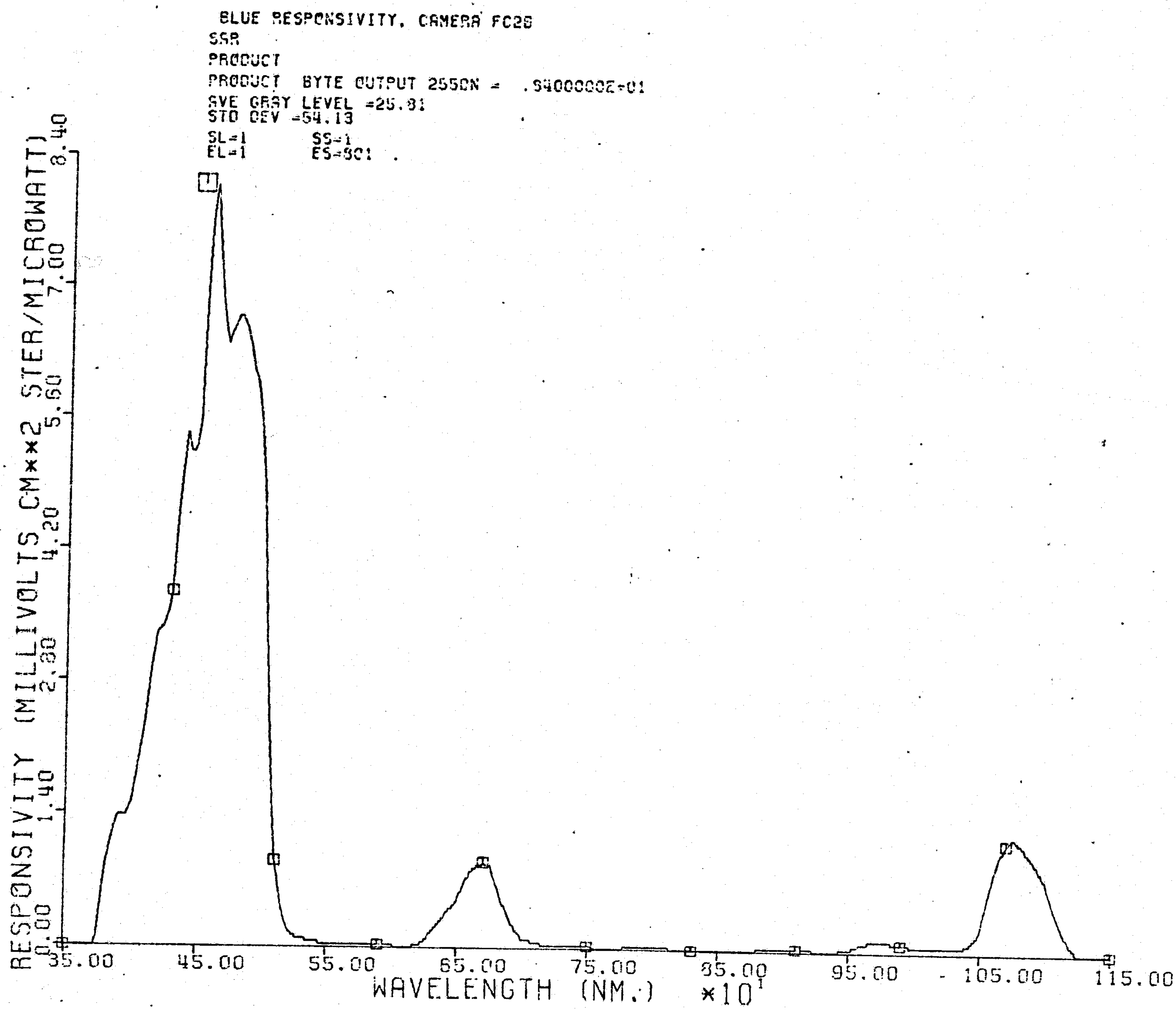


RED RESPONSIVITY, CAMERA FC2B
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .3590000E+01
AVE GRAY LEVEL =33.13
STD DEV =72.47
SL=1 SS=1
EL=1 ES=501
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.60
1.20
1.80
2.40
3.00
3.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10

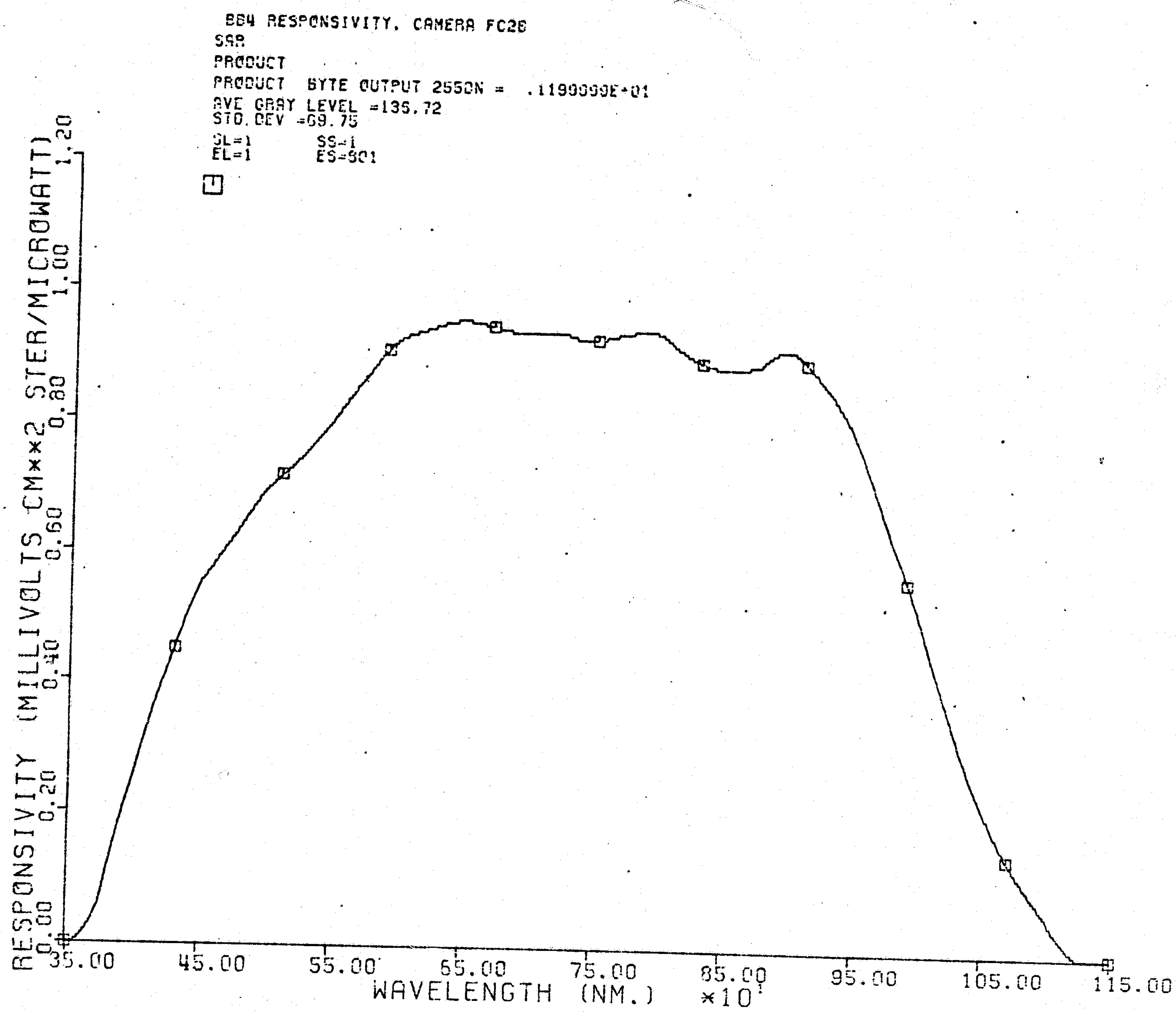
58



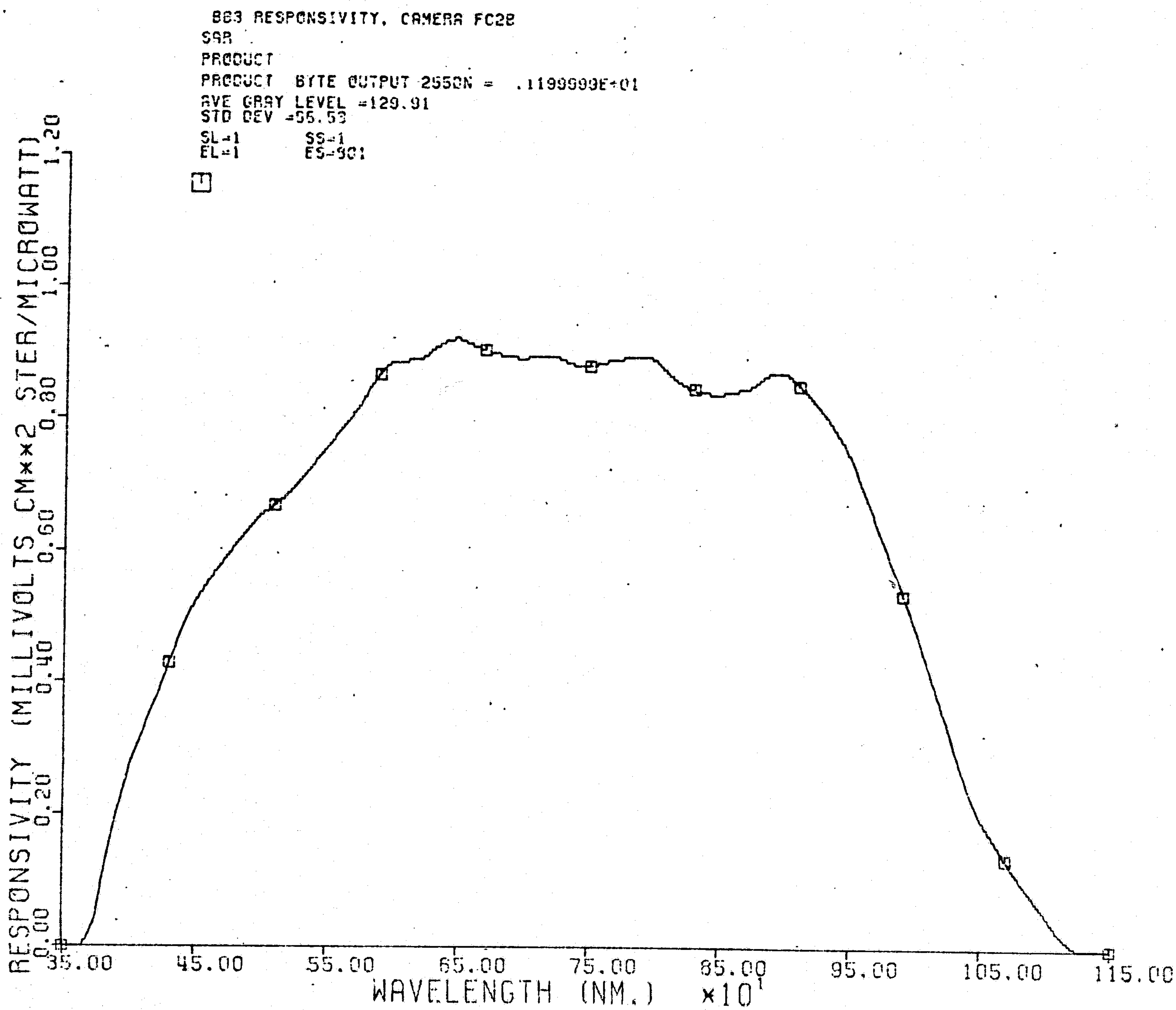
GREEN RESPONSIVITY, CAMERA FC26
SAR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .9599990E+01
AVE GRAY LEVEL =19.86
STD DEV =50.77
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.60
3.20
4.80
6.40
8.00
9.60
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10



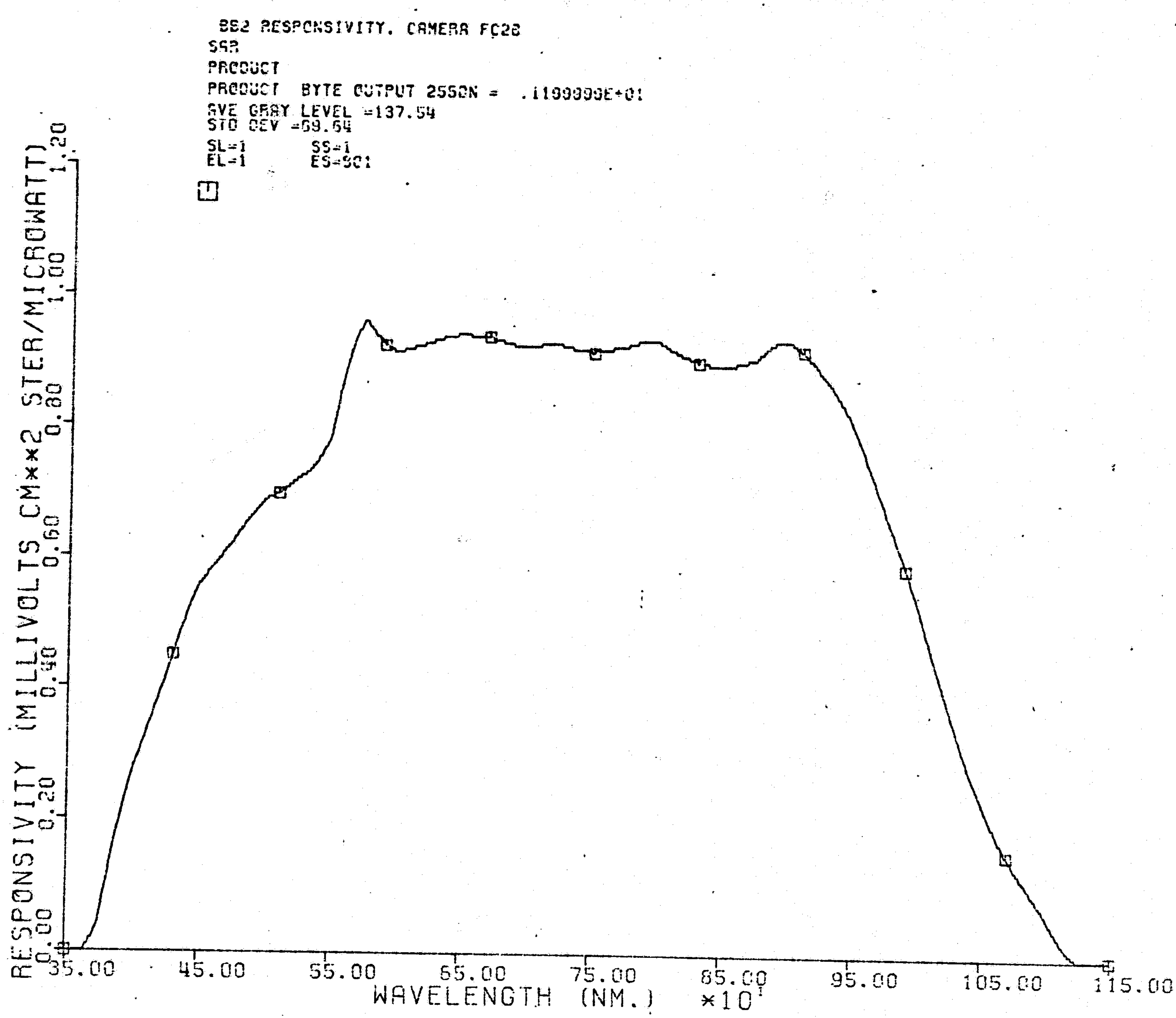
BLUE RESPONSIVITY, CAMERA FC28
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .94000002+01
AVE GRAY LEVEL =25.81
STD DEV =54.13
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
1.40
2.80
4.20
5.60
7.00
8.40
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]


BB4 RESPONSIVITY, CAMERA FC2B
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1190000E+01
AVE GRAY LEVEL =135.72
STD.DEV =69.75
SL=1 SS=1
EL=1 ES=801
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10

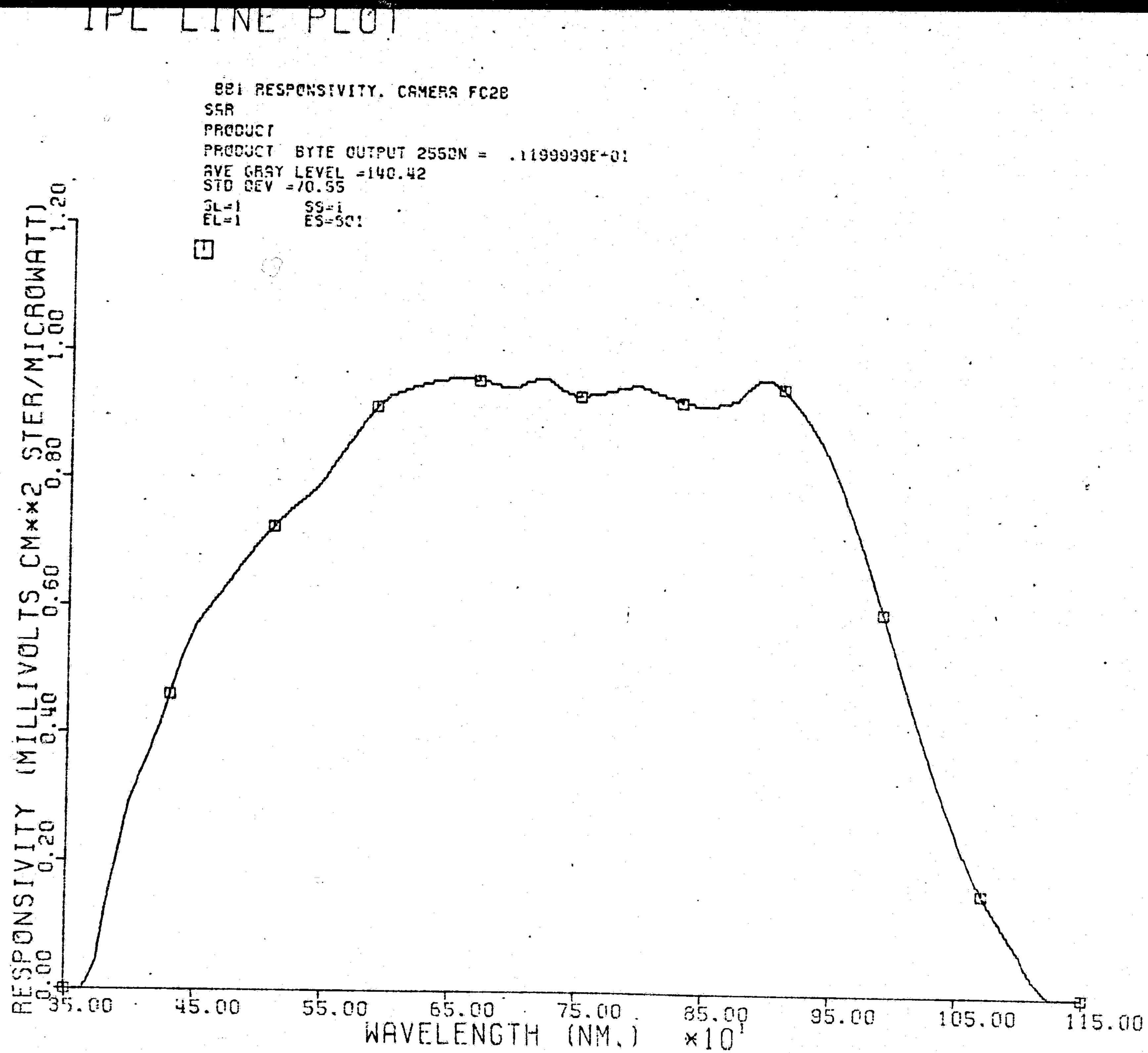
IPL LINE PLOT



62



BB2 RESPONSIVITY, CAMERA FC28
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =137.54
STD DEV =59.64
SL=1 SS=1
EL=1 ES=901
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) *10[1]



IPL LINE PLOT
881 RESPONSIVITY. CAMERA FC28
SSR
PRODUCT
PRODUCT BYTE OUTPUT 255DN = .1199999E+01
AVE GRAY LEVEL =140.42
STD DEV =70.55
SL=1 SS=1
EL=1 ES=501
RESPONSIVITY (MILLIVOLTS CM**2 STER/MICROWATT)
0.00
0.20
0.40
0.60
0.80
1.00
1.20
35.00
45.00
55.00
65.00
75.00
85.00
95.00
105.00
115.00
WAVELENGTH (NM.) ×10¹

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II

RESPONSIVITY TABLES

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (SPARE)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.6642	0.6642	0.6642	0.6642	0.6642
360	0.6642	0.6642	0.6642	0.6642	0.6642
370	0.6642	0.6642	0.6642	0.6636	0.6624
380	0.6615	0.6608	0.6604	0.6601	0.6600
390	0.6602	0.6606	0.6612	0.6620	0.6630
400	0.6642	0.6671	0.6659	0.6728	0.6756
410	0.6783	0.6811	0.6838	0.6864	0.6891
420	0.6917	0.6942	0.6967	0.6994	0.7022
430	0.7049	0.7075	0.7100	0.7124	0.7147
440	0.7169	0.7190	0.7210	0.7229	0.7247
450	0.7264	0.7274	0.7284	0.7294	0.7305
460	0.7315	0.7325	0.7335	0.7346	0.7356
470	0.7366	0.7376	0.7387	0.7399	0.7413
480	0.7426	0.7439	0.7451	0.7462	0.7473
490	0.7483	0.7492	0.7500	0.7508	0.7515
500	0.7522	0.7525	0.7528	0.7531	0.7533
510	0.7535	0.7537	0.7539	0.7541	0.7542
520	0.7543	0.7544	0.7545	0.7547	0.7549
530	0.7551	0.7552	0.7553	0.7553	0.7552
540	0.7551	0.7549	0.7547	0.7544	0.7540
550	0.7536	0.7525	0.7513	0.7503	0.7493
560	0.7484	0.7476	0.7468	0.7461	0.7455
570	0.7449	0.7444	0.7440	0.7441	0.7447
580	0.7452	0.7455	0.7458	0.7460	0.7461
590	0.7461	0.7461	0.7459	0.7456	0.7453
600	0.7448	0.7438	0.7427	0.7417	0.7406
610	0.7396	0.7385	0.7375	0.7364	0.7354
620	0.7343	0.7333	0.7322	0.7312	0.7301
630	0.7291	0.7280	0.7270	0.7259	0.7248
640	0.7237	0.7227	0.7216	0.7205	0.7194
650	0.7183	0.7170	0.7158	0.7146	0.7134
660	0.7122	0.7111	0.7099	0.7088	0.7077
670	0.7057	0.7057	0.7046	0.7039	0.7033
680	0.7027	0.7021	0.7013	0.7005	0.6997
690	0.6988	0.6978	0.6968	0.6957	0.6946
700	0.6934	0.6916	0.6899	0.6882	0.6865
710	0.6849	0.6833	0.6818	0.6802	0.6787
720	0.6773	0.6758	0.6744	0.6735	0.6728
730	0.6721	0.6713	0.6703	0.6693	0.6681
740	0.6669	0.6655	0.6640	0.6625	0.6608
750	0.6590	0.6562	0.6535	0.6508	0.6482

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (SPARE)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.6457	0.6432	0.6408	0.6384	0.6362
770	0.6339	0.6319	0.6297	0.6278	0.6260
780	0.6242	0.6225	0.6208	0.6191	0.6174
790	0.6157	0.6141	0.6125	0.6109	0.6093
800	0.6077	0.6057	0.6039	0.6021	0.6004
810	0.5988	0.5973	0.5959	0.5946	0.5934
820	0.5923	0.5912	0.5903	0.5895	0.5888
830	0.5883	0.5878	0.5873	0.5870	0.5866
840	0.5864	0.5862	0.5861	0.5860	0.5860
850	0.5861	0.5862	0.5865	0.5868	0.5871
860	0.5875	0.5879	0.5884	0.5890	0.5896
870	0.5902	0.5909	0.5917	0.5926	0.5935
880	0.5945	0.5956	0.5966	0.5977	0.5989
890	0.6000	0.6012	0.6025	0.6038	0.6051
900	0.6065	0.6082	0.6099	0.6115	0.6132
910	0.6149	0.6165	0.6181	0.6198	0.6214
920	0.6230	0.6246	0.6261	0.6278	0.6294
930	0.6311	0.6326	0.6342	0.6357	0.6372
940	0.6387	0.6401	0.6415	0.6428	0.6441
950	0.6454	0.6470	0.6486	0.6501	0.6514
960	0.6526	0.6537	0.6547	0.6556	0.6564
970	0.6570	0.6575	0.6579	0.6574	0.6561
980	0.6550	0.6541	0.6533	0.6526	0.6521
990	0.6518	0.6516	0.6516	0.6518	0.6521
1000	0.6525	0.6550	0.6573	0.6594	0.6614
1010	0.6632	0.6649	0.6664	0.6678	0.6690
1020	0.6701	0.6710	0.6717	0.6716	0.6709
1030	0.6702	0.6696	0.6690	0.6686	0.6681
1040	0.6678	0.6675	0.6673	0.6671	0.6670
1050	0.6670	0.6674	0.6677	0.6681	0.6685
1060	0.6699	0.6694	0.6698	0.6702	0.6707
1070	0.6711	0.6716	0.6721	0.6728	0.6736
1080	0.6743	0.6750	0.6757	0.6763	0.6769
1090	0.6774	0.6779	0.6783	0.6787	0.6791
1100	0.6794	0.6794	0.6794	0.6794	0.6794
1110	0.6794	0.6794	0.6794	0.6794	0.6794
1120	0.6794	0.6794	0.6794	0.6794	0.6794
1130	0.6794	0.6794	0.6794	0.6794	0.6794
1140	0.6794	0.6794	0.6794	0.6794	0.6794
1150	0.6794				

881 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.2520E3E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0039	0.0099
370	0.0171	0.0255	0.0352	0.0519	0.0741
380	0.0956	0.1163	0.1363	0.1556	0.1742
390	0.1922	0.2094	0.2261	0.2421	0.2574
400	0.2722	0.2834	0.2945	0.3056	0.3166
410	0.3276	0.3386	0.3495	0.3604	0.3712
420	0.3820	0.3927	0.4034	0.4150	0.4271
430	0.4390	0.4504	0.4615	0.4722	0.4825
440	0.4924	0.5019	0.5110	0.5196	0.5279
450	0.5356	0.5403	0.5450	0.5496	0.5543
460	0.5590	0.5636	0.5683	0.5730	0.5777
470	0.5824	0.5871	0.5918	0.5968	0.6020
480	0.6072	0.6123	0.6172	0.6221	0.6268
490	0.6314	0.6360	0.6404	0.6447	0.6488
500	0.6529	0.6558	0.6588	0.6619	0.6650
510	0.6681	0.6713	0.6746	0.6779	0.6812
520	0.6846	0.6880	0.6915	0.6949	0.6984
530	0.7019	0.7055	0.7092	0.7129	0.7167
540	0.7205	0.7244	0.7284	0.7324	0.7365
550	0.7406	0.7452	0.7497	0.7542	0.7587
560	0.7632	0.7676	0.7721	0.7765	0.7810
570	0.7854	0.7899	0.7943	0.7996	0.8055
580	0.8111	0.8165	0.8216	0.8265	0.8310
590	0.8353	0.8393	0.8430	0.8464	0.8495
600	0.8524	0.8533	0.8541	0.8550	0.8559
610	0.8568	0.8577	0.8586	0.8595	0.8604
620	0.8613	0.8623	0.8632	0.8646	0.8662
630	0.8677	0.8691	0.8704	0.8715	0.8726
640	0.8734	0.8742	0.8748	0.8753	0.8757
650	0.8760	0.8752	0.8744	0.8737	0.8730
660	0.8724	0.8718	0.8713	0.8708	0.8704
670	0.8700	0.8696	0.8693	0.8691	0.8691
680	0.8691	0.8691	0.8691	0.8691	0.8691
690	0.8691	0.8691	0.8691	0.8691	0.8691
700	0.8692	0.8690	0.8689	0.8688	0.8687
710	0.8687	0.8687	0.8687	0.8688	0.8688
720	0.8699	0.8691	0.8692	0.8699	0.8709
730	0.8718	0.8726	0.8733	0.8738	0.8742
740	0.8745	0.8746	0.8746	0.8745	0.8743
750	0.8739	0.8722	0.8706	0.8691	0.8676

BHI RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.8663	0.8650	0.8637	0.8626	0.8615
770	0.8605	0.8596	0.8588	0.8588	0.8595
780	0.8600	0.8603	0.8605	0.8604	0.8601
790	0.8597	0.8590	0.8582	0.8572	0.8560
800	0.8547	0.8511	0.8478	0.8446	0.8416
810	0.8387	0.8361	0.8336	0.8313	0.8291
820	0.8271	0.8253	0.8237	0.8226	0.8219
830	0.8213	0.8207	0.8202	0.8197	0.8193
840	0.8189	0.8185	0.8182	0.8180	0.8177
850	0.8176	0.8174	0.8173	0.8172	0.8171
860	0.8171	0.8172	0.8173	0.8174	0.8176
870	0.8178	0.8181	0.8184	0.8197	0.8218
880	0.8236	0.8251	0.8264	0.8273	0.8280
890	0.8295	0.8285	0.8284	0.8279	0.8272
900	0.8262	0.8239	0.8214	0.8188	0.8161
910	0.8133	0.8103	0.8072	0.8039	0.8005
920	0.7970	0.7934	0.7896	0.7865	0.7841
930	0.7812	0.7778	0.7741	0.7698	0.7651
940	0.7600	0.7544	0.7484	0.7419	0.7350
950	0.7275	0.7172	0.7069	0.6965	0.6860
960	0.6756	0.6651	0.6545	0.6440	0.6335
970	0.6229	0.6124	0.6019	0.5915	0.5813
980	0.5711	0.5609	0.5507	0.5405	0.5303
990	0.5201	0.5099	0.4996	0.4893	0.4790
1000	0.4686	0.4576	0.4465	0.4354	0.4243
1010	0.4133	0.4022	0.3912	0.3802	0.3692
1020	0.3583	0.3475	0.3367	0.3257	0.3145
1030	0.3036	0.2929	0.2824	0.2722	0.2622
1040	0.2524	0.2429	0.2334	0.2242	0.2153
1050	0.2065	0.1978	0.1852	0.1809	0.1728
1060	0.1650	0.1573	0.1500	0.1428	0.1359
1070	0.1292	0.1227	0.1164	0.1111	0.1066
1080	0.1020	0.0974	0.0929	0.0883	0.0837
1090	0.0792	0.0746	0.0700	0.0655	0.0609
1100	0.0563	0.0497	0.0435	0.0377	0.0322
1110	0.0270	0.0223	0.0178	0.0138	0.0101
1120	0.0067	0.0038	0.0012	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BB2 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.297275E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0038	0.0090	0.0153
370	0.0228	0.0314	0.0412	0.0575	0.0791
380	0.0999	0.1201	0.1355	0.1584	0.1765
390	0.1941	0.2110	0.2274	0.2432	0.2584
400	0.2731	0.2843	0.2955	0.3068	0.3180
410	0.3292	0.3404	0.3516	0.3627	0.3739
420	0.3850	0.3961	0.4072	0.4193	0.4322
430	0.4448	0.4569	0.4667	0.4801	0.4911
440	0.5016	0.5118	0.5215	0.5308	0.5397
450	0.5481	0.5536	0.5592	0.5646	0.5700
460	0.5753	0.5806	0.5858	0.5910	0.5961
470	0.6011	0.6061	0.6110	0.6160	0.6208
480	0.6256	0.6304	0.6350	0.6396	0.6441
490	0.6485	0.6529	0.6571	0.6613	0.6654
500	0.6694	0.6725	0.6756	0.6788	0.6821
510	0.6854	0.6888	0.6922	0.6956	0.6991
520	0.7027	0.7063	0.7099	0.7137	0.7174
530	0.7212	0.7251	0.7290	0.7329	0.7369
540	0.7410	0.7450	0.7492	0.7534	0.7576
550	0.7619	0.7664	0.7710	0.7755	0.7800
560	0.7846	0.7891	0.7936	0.7981	0.8026
570	0.8071	0.8116	0.8161	0.8215	0.8275
580	0.8333	0.8388	0.8440	0.8489	0.8535
590	0.8579	0.8620	0.8658	0.8693	0.8725
600	0.8755	0.8766	0.8776	0.8787	0.8797
610	0.8808	0.8817	0.8827	0.8837	0.8846
620	0.8855	0.8863	0.8872	0.8883	0.8895
630	0.8907	0.8917	0.8927	0.8935	0.8942
640	0.8948	0.8952	0.8956	0.8958	0.8960
650	0.8960	0.8950	0.8941	0.8932	0.8923
660	0.8915	0.8908	0.8901	0.8895	0.8889
670	0.8883	0.8878	0.8874	0.8871	0.8870
680	0.8869	0.8868	0.8866	0.8865	0.8864
690	0.8864	0.8863	0.8862	0.8861	0.8861
700	0.8860	0.8858	0.8856	0.8854	0.8853
710	0.8852	0.8852	0.8851	0.8851	0.8851
720	0.8852	0.8853	0.8854	0.8859	0.8867
730	0.8875	0.8881	0.8887	0.8891	0.8895
740	0.8897	0.8899	0.8859	0.8898	0.8897
750	0.8894	0.8882	0.8871	0.8860	0.8849

BB2 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.8838	0.8828	0.8818	0.8809	0.8800
770	0.8791	0.8782	0.8774	0.8772	0.8773
780	0.8774	0.8773	0.8770	0.8766	0.8761
790	0.8754	0.8746	0.8737	0.8726	0.8714
800	0.8701	0.8674	0.8649	0.8624	0.8600
810	0.8577	0.8555	0.8534	0.8513	0.8493
820	0.8475	0.8456	0.8439	0.8422	0.8404
830	0.8388	0.8372	0.8358	0.8345	0.8334
840	0.8323	0.8314	0.8306	0.8300	0.8294
850	0.8290	0.8293	0.8295	0.8298	0.8302
860	0.8305	0.8309	0.8312	0.8316	0.8321
870	0.8325	0.8329	0.8334	0.8348	0.8370
880	0.8389	0.8404	0.8417	0.8427	0.8434
890	0.8437	0.8437	0.8435	0.8429	0.8420
900	0.8408	0.8380	0.8350	0.8320	0.8288
910	0.8256	0.8222	0.8188	0.8152	0.8116
920	0.8079	0.8040	0.8001	0.7972	0.7950
930	0.7923	0.7893	0.7857	0.7816	0.7772
940	0.7721	0.7667	0.7608	0.7544	0.7475
950	0.7401	0.7299	0.7155	0.7090	0.6985
960	0.6879	0.6773	0.6667	0.6560	0.6452
970	0.6345	0.6237	0.6129	0.6021	0.5912
980	0.5804	0.5696	0.5589	0.5483	0.5376
990	0.5270	0.5165	0.5059	0.4953	0.4848
1000	0.4742	0.4634	0.4524	0.4415	0.4305
1010	0.4196	0.4086	0.3976	0.3867	0.3758
1020	0.3649	0.3541	0.3433	0.3320	0.3205
1030	0.3092	0.2982	0.2875	0.2770	0.2669
1040	0.2569	0.2473	0.2379	0.2287	0.2198
1050	0.2112	0.2033	0.1956	0.1880	0.1806
1060	0.1733	0.1662	0.1592	0.1523	0.1456
1070	0.1391	0.1326	0.1264	0.1205	0.1151
1080	0.1097	0.1043	0.0990	0.0937	0.0884
1090	0.0832	0.0780	0.0729	0.0678	0.0628
1100	0.0578	0.0511	0.0447	0.0387	0.0330
1110	0.0278	0.0229	0.0184	0.0141	0.0104
1120	0.0069	0.0039	0.0012	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BB3 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.220029E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0035	0.0089	0.0154
370	0.0232	0.0321	0.0423	0.0596	0.0827
380	0.1048	0.1262	0.1467	0.1665	0.1854
390	0.2037	0.2212	0.2379	0.2540	0.2694
400	0.2841	0.2942	0.3044	0.3146	0.3248
410	0.3351	0.3453	0.3556	0.3659	0.3762
420	0.3865	0.3969	0.4072	0.4187	0.4310
430	0.4429	0.4545	0.4657	0.4766	0.4871
440	0.4971	0.5069	0.5160	0.5249	0.5333
450	0.5413	0.5464	0.5514	0.5565	0.5615
460	0.5665	0.5714	0.5764	0.5813	0.5862
470	0.5911	0.5960	0.6008	0.6059	0.6111
480	0.6162	0.6212	0.6261	0.6310	0.6357
490	0.6403	0.6448	0.6492	0.6535	0.6577
500	0.6618	0.6646	0.6676	0.6706	0.6737
510	0.6768	0.6801	0.6834	0.6868	0.6903
520	0.6939	0.6976	0.7013	0.7053	0.7095
530	0.7138	0.7181	0.7223	0.7266	0.7309
540	0.7352	0.7395	0.7438	0.7481	0.7524
550	0.7567	0.7609	0.7651	0.7693	0.7735
560	0.7777	0.7820	0.7863	0.7906	0.7949
570	0.7992	0.8036	0.8080	0.8134	0.8194
580	0.8251	0.8306	0.8359	0.8409	0.8456
590	0.8501	0.8543	0.8583	0.8620	0.8654
600	0.86[illegible]	0.8703	0.8719	0.8735	0.8751
610	0.876[illegible]	0.8779	0.8793	0.8805	0.8817
620	0.8828	0.8839	0.8849	0.8859	0.8868
630	0.8877	0.8885	0.8892	0.8898	0.8904
640	0.8908	0.8912	0.8915	0.8918	0.8919
650	0.8920	0.8913	0.8907	0.8902	0.8896
660	0.8891	0.8887	0.8883	0.8879	0.8875
670	0.8872	0.8870	0.8868	0.8867	0.8866
680	0.8867	0.886[illegible]	0.8867	0.8867	0.8868
690	0.8869	0.8869	0.8870	0.8870	0.8871
700	0.8872	0.8876	0.8879	0.8882	0.8885
710	0.8887	0.8889	0.88[illegible]	0.8890	0.8890
720	0.8890	0.8889	0.8888	0.8887	0.8885
730	0.8883	0.8880	0.8877	0.8874	0.8870
740	0.8866	0.8862	0.8857	0.8852	0.8846
750	0.8841	0.8829	0.8818	0.8807	0.8797

BB3 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9787	0.8779	0.8769	0.8761	0.8753
770	0.9746	0.8739	0.8733	0.8736	0.8748
780	0.8756	0.8762	0.8765	0.8766	0.8763
790	0.8758	0.8751	0.8741	0.8729	0.8714
800	0.8696	0.8648	0.8602	0.8559	0.8518
810	0.8480	0.8445	0.8412	0.8381	0.8353
820	0.9328	0.8305	0.8285	0.8272	0.8266
830	0.9260	0.8255	0.8251	0.8248	0.8244
840	0.8242	0.8240	0.8240	0.8239	0.8240
850	0.9240	0.9243	0.8247	0.8251	0.8255
860	0.8259	0.8264	0.8269	0.8275	0.8281
870	0.8287	0.8294	0.8301	0.8318	0.8344
880	0.9366	0.8385	0.8402	0.8415	0.8426
890	0.9432	0.8436	0.8437	0.8434	0.8429
900	0.8420	0.8395	0.8369	0.8341	0.9313
910	0.9293	0.8252	0.8220	0.8187	0.8153
920	0.8117	0.8081	0.8043	0.8014	0.7990
930	0.7962	0.7929	0.7853	0.7652	0.7806
940	0.7757	0.7703	0.7644	0.7581	0.7514
950	0.7442	0.7343	0.7243	0.7143	0.7042
960	0.6940	0.6838	0.6735	0.6632	0.6529
970	0.6425	0.6321	0.6217	0.6113	0.6009
980	0.5905	0.5801	0.5658	0.5595	0.5492
990	0.5339	0.5286	0.5183	0.5080	0.4977
1000	0.4873	0.4765	0.4658	0.4550	0.4441
1010	0.4332	0.4223	0.4114	0.4006	0.3897
1020	0.3788	0.3680	0.3572	0.3459	0.3343
1030	0.3230	0.3120	0.3012	0.2906	0.2803
1040	0.2703	0.2605	0.2510	0.2417	0.2326
1050	0.2237	0.2156	0.2076	0.1997	0.1920
1060	0.1844	0.1770	0.1657	0.1625	0.1555
1070	0.1496	0.1419	0.1353	0.1292	0.1235
1080	0.1178	0.1121	0.1065	0.1009	0.0953
1090	0.0893	0.0843	0.0788	0.0734	0.0680
1100	0.0627	0.0553	0.0484	0.0419	0.0358
1110	0.0301	0.0248	0.0158	0.0153	0.0112
1120	0.0075	0.0042	0.0013	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BB4 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	-.312274E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0009	0.0061	0.0127
370	0.0205	0.0295	0.0359	0.0578	0.0817
380	0.1047	0.1268	0.1461	0.1686	0.1883
390	0.2072	0.2254	0.2428	0.2595	0.2754
400	0.2907	0.3012	0.3117	0.3223	0.3329
410	0.3435	0.3542	0.3650	0.3757	0.3865
420	0.3974	0.4082	0.4191	0.4314	0.4446
430	0.4575	0.4700	0.4820	0.4937	0.5049
440	0.5156	0.5259	0.5358	0.5452	0.5541
450	0.5625	0.5678	0.5730	0.5782	0.5833
460	0.5884	0.5935	0.5985	0.6035	0.6085
470	0.6134	0.6183	0.6231	0.6281	0.6331
480	0.6381	0.6429	0.6477	0.6524	0.6570
490	0.6615	0.6660	0.6703	0.6745	0.6786
500	0.6827	0.6855	0.6983	0.6913	0.6944
510	0.6975	0.7008	0.7042	0.7076	0.7112
520	0.7149	0.7196	0.7225	0.7267	0.7312
530	0.7357	0.7402	0.7447	0.7492	0.7538
540	0.7584	0.7630	0.7676	0.7722	0.7768
550	0.7814	0.7860	0.7906	0.7952	0.7998
560	0.8045	0.8091	0.8137	0.8184	0.8231
570	0.8278	0.8325	0.8372	0.8430	0.8496
580	0.8559	0.8619	0.8676	0.8729	0.8779
590	0.8826	0.8870	0.8910	0.8947	0.8981
600	0.9012	0.9023	0.9034	0.9044	0.9053
610	0.9062	0.9071	0.9079	0.9086	0.9093
620	0.9099	0.9105	0.9110	0.9114	0.9118
630	0.9121	0.9124	0.9127	0.9128	0.9130
640	0.9130	0.9131	0.9131	0.9130	0.9129
650	0.9128	0.9122	0.9116	0.9111	0.9106
660	0.9101	0.9096	0.9091	0.9087	0.9083
670	0.9079	0.9075	0.9071	0.9067	0.9062
680	0.9057	0.9053	0.9050	0.9047	0.9045
690	0.9043	0.9041	0.9041	0.9041	0.9041
700	0.9042	0.9046	0.9051	0.9055	0.9060
710	0.9064	0.9068	0.9072	0.9076	0.9080
720	0.9084	0.9083	0.9052	0.9098	0.9107
730	0.9114	0.9121	0.9127	0.9131	0.9135
740	0.9138	0.9139	0.9140	0.9140	0.9138
750	0.9136	0.9123	0.9111	0.9100	0.9089

RAW RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9078	0.9068	0.9059	0.9050	0.9042
770	0.9034	0.9027	0.9020	0.9025	0.9038
780	0.9048	0.9056	0.9060	0.9061	0.9059
790	0.9054	0.9047	0.9036	0.9023	0.9007
800	0.8988	0.8935	0.8885	0.8838	0.8794
810	0.8752	0.8713	0.8677	0.8644	0.8613
820	0.8585	0.8560	0.8537	0.8523	0.8516
830	0.8509	0.8503	0.8498	0.8493	0.8489
840	0.8486	0.8483	0.8482	0.8481	0.8481
850	0.8481	0.8485	0.8450	0.8494	0.8499
860	0.8504	0.8509	0.8514	0.8519	0.8525
870	0.8530	0.8535	0.8541	0.8556	0.8577
880	0.8595	0.8611	0.8624	0.8633	0.8640
890	0.8644	0.8645	0.8643	0.8638	0.8630
900	0.8619	0.8596	0.8571	0.8545	0.8517
910	0.8487	0.8456	0.8423	0.8389	0.8353
920	0.8316	0.8276	0.8236	0.8202	0.8173
930	0.8139	0.8101	0.8058	0.8011	0.7960
940	0.7903	0.7843	0.7777	0.7707	0.7632
950	0.7553	0.7445	0.7337	0.7228	0.7118
960	0.7008	0.6897	0.6786	0.6674	0.6562
970	0.6450	0.6337	0.6225	0.6111	0.5998
980	0.5885	0.5772	0.5660	0.5549	0.5438
990	0.5327	0.5216	0.5105	0.4995	0.4884
1000	0.4773	0.4657	0.4541	0.4425	0.4309
1010	0.4193	0.4078	0.3963	0.3848	0.3734
1020	0.3621	0.3508	0.3396	0.3281	0.3163
1030	0.3048	0.2936	0.2827	0.2721	0.2618
1040	0.2517	0.2420	0.2325	0.2233	0.2144
1050	0.2057	0.1980	0.1904	0.1830	0.1757
1060	0.1685	0.1615	0.1546	0.1479	0.1413
1070	0.1348	0.1285	0.1223	0.1166	0.1112
1080	0.1058	0.1005	0.0952	0.0900	0.0848
1090	0.0797	0.0746	0.0696	0.0647	0.0598
1100	0.0549	0.0486	0.0425	0.0367	0.0314
1110	0.0263	0.0217	0.0174	0.0135	0.0098
1120	0.0066	0.0037	0.0012	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IRI RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.499066E-06	0.0010	0.0020	0.0030	0.0041
360	0.0052	0.0063	0.0074	0.0086	0.0098
370	0.0110	0.0123	0.0136	0.0153	0.0175
380	0.0195	0.0214	0.0232	0.0248	0.0263
390	0.0276	0.0289	0.0300	0.0309	0.0318
400	0.0325	0.0326	0.0327	0.0327	0.0326
410	0.0325	0.0324	0.0322	0.0320	0.0317
420	0.0314	0.0311	0.0307	0.0300	0.0292
430	0.0284	0.0276	0.0268	0.0260	0.0253
440	0.0245	0.0238	0.0230	0.0223	0.0216
450	0.0209	0.0199	0.0189	0.0181	0.0173
460	0.0165	0.0159	0.0153	0.0147	0.0142
470	0.0139	0.0135	0.0132	0.0133	0.0136
480	0.0140	0.0143	0.0145	0.0148	0.0150
490	0.0152	0.0154	0.0156	0.0157	0.0158
500	0.0159	0.0156	0.0153	0.0150	0.0148
510	0.0147	0.0146	0.0145	0.0144	0.0144
520	0.0144	0.0145	0.0146	0.0149	0.0153
530	0.0157	0.0161	0.0165	0.0169	0.0173
540	0.0176	0.0180	0.0183	0.0187	0.0190
550	0.0193	0.0191	0.0190	0.0190	0.0190
560	0.0191	0.0193	0.0196	0.0200	0.0204
570	0.0209	0.0214	0.0221	0.0233	0.0251
580	0.0267	0.0282	0.0297	0.0310	0.0322
590	0.0333	0.0343	0.0351	0.0359	0.0366
600	0.0371	0.0373	0.0374	0.0374	0.0374
610	0.0373	0.0371	0.0369	0.0366	0.0362
620	0.0358	0.0353	0.0347	0.0336	0.0322
630	0.0309	0.0296	0.0284	0.0273	0.0262
640	0.0253	0.0244	0.0235	0.0227	0.0221
650	0.0214	0.0211	0.0208	0.0205	0.0203
660	0.0200	0.0199	0.0197	0.0196	0.0195
670	0.0194	0.0194	0.0194	0.0195	0.0197
680	0.0199	0.0201	0.0203	0.0205	0.0208
690	0.0210	0.0212	0.0214	0.0216	0.0218
700	0.0220	0.0218	0.0216	0.0216	0.0216
710	0.0217	0.0218	0.0221	0.0224	0.0228
720	0.0233	0.0239	0.0245	0.0225	0.0185
730	0.0154	0.0134	0.0124	0.0124	0.0134
740	0.0154	0.0183	0.0222	0.0271	0.0329
750	0.0399	0.0361	0.0353	0.0375	0.0426

IFT RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0505	0.0614	0.0750	0.0915	0.1107
770	0.1326	0.1573	0.1847	0.1755	0.1409
780	0.1208	0.1182	0.1259	0.1568	0.2009
790	0.2599	0.3337	0.4222	0.5264	0.6450
800	0.7780	0.9207	1.0909	1.2463	1.4033
810	1.5808	1.7764	1.9892	2.2485	2.5392
820	2.9202	3.0918	3.3540	3.6575	3.9674
830	4.2243	4.4304	4.5862	4.6596	4.6725
840	4.5612	4.6247	4.5629	4.4626	4.3434
850	4.2280	4.1024	3.9968	3.9172	3.8574
860	3.8197	3.8030	3.8062	3.8489	3.9151
870	3.9910	4.0770	4.1735	4.3343	4.5240
880	4.6748	4.7876	4.8623	4.9164	4.9300
890	4.8943	4.8069	4.6632	4.4470	4.1896
900	3.9140	3.6036	3.2985	2.9770	2.6519
910	2.3519	2.0785	1.8318	1.6251	1.4501
920	1.2906	1.1445	1.0142	0.9087	0.8207
930	0.7407	0.6664	0.5955	0.5501	0.5138
940	0.4791	0.4462	0.4151	0.3857	0.3581
950	0.3324	0.3155	0.2951	0.2834	0.2684
960	0.2539	0.2402	0.2271	0.2147	0.2030
970	0.1920	0.1818	0.1723	0.1649	0.1598
980	0.1548	0.1501	0.1455	0.1411	0.1370
990	0.1330	0.1291	0.1255	0.1220	0.1188
1000	0.1157	0.1133	0.1109	0.1086	0.1064
1010	0.1043	0.1022	0.1002	0.0983	0.0965
1020	0.0940	0.0932	0.0917	0.0902	0.0887
1030	0.0873	0.0860	0.0849	0.0840	0.0831
1040	0.0824	0.0818	0.0813	0.0810	0.0808
1050	0.0807	0.0208	0.0810	0.0814	0.0818
1060	0.0824	0.0831	0.0839	0.0849	0.0859
1070	0.0871	0.0884	0.0899	0.0947	0.1019
1080	0.1083	0.1137	0.1182	0.1217	0.1242
1090	0.1259	0.1266	0.1264	0.1251	0.1230
1100	0.1199	0.1059	0.0927	0.0803	0.0685
1110	0.0576	0.0474	0.0381	0.0294	0.0215
1120	0.0144	0.0081	0.0026	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IR2 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0027	0.0053	0.0078	0.0103
360	0.0128	0.0152	0.0176	0.0200	0.0222
370	0.0245	0.0267	0.0288	0.0313	0.0340
380	0.0366	0.0389	0.0411	0.0431	0.0450
390	0.0466	0.0482	0.0495	0.0507	0.0517
400	0.0525	0.0517	0.0510	0.0503	0.0498
410	0.0493	0.0489	0.0486	0.0484	0.0483
420	0.0484	0.0485	0.0487	0.0491	0.0497
430	0.0503	0.0511	0.0519	0.0528	0.0537
440	0.0547	0.0558	0.0570	0.0583	0.0596
450	0.0610	0.0545	0.0494	0.0458	0.0436
460	0.0429	0.0436	0.0458	0.0495	0.0548
470	0.0614	0.0696	0.0754	0.0942	0.1135
480	0.1330	0.1529	0.1731	0.1937	0.2145
490	0.2356	0.2571	0.2788	0.3009	0.3232
500	0.3458	0.4002	0.4493	0.4933	0.5320
510	0.5656	0.5939	0.6169	0.6348	0.6473
520	0.6546	0.6566	0.6534	0.6214	0.5661
530	0.5135	0.4634	0.4162	0.3714	0.3294
540	0.2900	0.2533	0.2192	0.1879	0.1592
550	0.1333	0.1221	0.1115	0.1015	0.0921
560	0.0833	0.0751	0.0674	0.0603	0.0537
570	0.0477	0.0423	0.0374	0.0346	0.0334
580	0.0322	0.0311	0.0301	0.0291	0.0282
590	0.0273	0.0265	0.0257	0.0250	0.0243
600	0.0237	0.0234	0.0231	0.0225	0.0226
610	0.0224	0.0221	0.0219	0.0217	0.0215
620	0.0213	0.0211	0.0209	0.0204	0.0198
630	0.0192	0.0198	0.0184	0.0182	0.0180
640	0.0179	0.0179	0.0181	0.0183	0.0186
650	0.0189	0.0203	0.0216	0.0229	0.0241
660	0.0252	0.0262	0.0272	0.0281	0.0289
670	0.0297	0.0304	0.0310	0.0305	0.0290
680	0.0279	0.0271	0.0265	0.0263	0.0264
690	0.0268	0.0275	0.0285	0.0297	0.0313
700	0.0332	0.0354	0.0378	0.0405	0.0436
710	0.0468	0.0504	0.0543	0.0584	0.0628
720	0.0675	0.0724	0.0776	0.0862	0.0975
730	0.1081	0.1178	0.1268	0.1349	0.1423
740	0.1489	0.1546	0.1595	0.1636	0.1670
750	0.1696	0.1690	0.1680	0.1667	0.1650

IP2 RESPONSIVITY, CAMERA SPACE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.1630	0.1607	0.1580	0.1551	0.1517
770	0.1481	0.1442	0.1355	0.1328	0.1233
780	0.1145	0.1062	0.0985	0.0914	0.0848
790	0.0788	0.0733	0.0684	0.0640	0.0601
800	0.0569	0.0556	0.0546	0.0539	0.0534
810	0.0532	0.0531	0.0533	0.0537	0.0543
820	0.0551	0.0562	0.0514	0.0574	0.0564
830	0.0561	0.0566	0.0578	0.0597	0.0624
840	0.0657	0.0698	0.0746	0.0802	0.0866
850	0.0935	0.0593	0.0334	0.0153	0.0042
860	0.0023	0.0084	0.0229	0.0442	0.0748
870	0.1135	0.1594	0.2149	0.1996	0.1329
880	0.1001	0.1013	0.1379	0.2099	0.3165
890	0.4590	0.6376	0.8515	1.1010	1.3896
900	1.7067	2.0372	2.4493	2.9358	3.4996
910	4.1523	4.9884	5.7524	6.4957	7.1782
920	7.7580	8.2207	8.5656	8.7655	8.8519
930	8.9020	8.8723	8.8545	8.8894	8.9536
940	8.9991	9.0236	9.0252	9.0700	9.0561
950	8.9305	8.6524	8.2911	7.8054	7.2556
960	6.5870	6.0660	5.4712	4.6702	4.2833
970	3.7567	3.2791	2.8565	2.4989	2.1908
980	1.9243	1.7117	1.5201	1.3607	1.2265
990	1.1057	0.9992	0.9046	0.8253	0.7579
1000	0.6956	0.6575	0.6208	0.5853	0.5513
1010	0.5188	0.4077	0.4581	0.4301	0.4037
1020	0.3789	0.3558	0.3342	0.0067	0.0199
1030	0.0326	0.0449	0.0566	0.0679	0.0789
1040	0.0893	0.0993	0.1089	0.1181	0.1268
1050	0.1351	0.1431	0.1506	0.1577	0.1645
1060	0.1708	0.1766	0.1820	0.1870	0.1916
1070	0.1958	0.1995	0.2028	0.2057	0.2083
1080	0.2104	0.2120	0.2132	0.2139	0.2142
1090	0.2140	0.2134	0.2124	0.2108	0.2089
1100	0.2064	0.2035	0.2000	0.1962	0.1919
1110	0.1871	0.1820	0.1764	0.1704	0.1638
1120	0.1569	0.1495	0.1417	0.1334	0.1248
1130	0.1157	0.1060	0.0960	0.0856	0.0746
1140	0.0633	0.0516	0.0394	0.0267	0.0136
1150	0.0001				

IR3 RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0058	0.0117	0.0175	0.0234
360	0.0292	0.0350	0.0409	0.0467	0.0525
370	0.0584	0.0642	0.0700	0.0777	0.0868
380	0.0953	0.1031	0.1103	0.1168	0.1228
390	0.1281	0.1328	0.1369	0.1404	0.1434
400	0.1457	0.1408	0.1364	0.1325	0.1292
410	0.1263	0.1240	0.1221	0.1209	0.1201
420	0.1199	0.1202	0.1211	0.1228	0.1251
430	0.1280	0.1314	0.1353	0.1398	0.1448
440	0.1503	0.1564	0.1630	0.1701	0.1778
450	0.1861	0.2005	0.2145	0.2281	0.2413
460	0.2540	0.2662	0.2780	0.2894	0.3003
470	0.3108	0.3208	0.3304	0.3432	0.3583
480	0.3718	0.3837	0.3928	0.4022	0.4090
490	0.4140	0.4172	0.4188	0.4185	0.4166
500	0.4129	0.3930	0.3738	0.3554	0.3377
510	0.3208	0.3047	0.2893	0.2747	0.2609
520	0.2478	0.2355	0.2240	0.2143	0.2062
530	0.1986	0.1913	0.1845	0.1781	0.1721
540	0.1665	0.1613	0.1566	0.1523	0.1484
550	0.1450	0.1429	0.1412	0.1396	0.1383
560	0.1373	0.1365	0.1359	0.1356	0.1356
570	0.1357	0.1361	0.1368	0.1381	0.1399
580	0.1418	0.1439	0.1460	0.1483	0.1507
590	0.1532	0.1558	0.1585	0.1613	0.1642
600	0.1671	0.1698	0.1726	0.1755	0.1787
610	0.1821	0.1856	0.1893	0.1933	0.1974
620	0.2017	0.2062	0.2109	0.2158	0.2207
630	0.2259	0.2313	0.2369	0.2427	0.2487
640	0.2549	0.2613	0.2679	0.2747	0.2818
650	0.2890	0.2948	0.3011	0.3079	0.3152
660	0.3229	0.3311	0.3397	0.3488	0.3584
670	0.3684	0.3789	0.3898	0.4016	0.4143
680	0.4273	0.4406	0.4541	0.4680	0.4821
690	0.4966	0.5113	0.5262	0.5415	0.5570
700	0.5727	0.6000	0.6255	0.6493	0.6712
710	0.6914	0.7099	0.7266	0.7416	0.7550
720	0.7666	0.7766	0.7849	0.7990	0.8169
730	0.8300	0.8405	0.8461	0.8477	0.8453
740	0.8398	0.8281	0.8135	0.7951	0.7725
750	0.7461	0.6724	0.6026	0.5371	0.4757

IR RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.4183	0.3647	0.3154	0.2697	0.2278
770	0.1899	0.1555	0.1248	0.1069	0.0995
780	0.0925	0.0859	0.0756	0.0738	0.0684
790	0.0633	0.0586	0.0543	0.0503	0.0468
800	0.0436	0.0419	0.0404	0.0391	0.0379
810	0.0368	0.0359	0.0351	0.0345	0.0340
820	0.0336	0.0334	0.0333	0.0333	0.0334
830	0.0337	0.0341	0.0347	0.0354	0.0363
840	0.0373	0.0385	0.0398	0.0413	0.0430
850	0.0448	0.0439	0.0435	0.0439	0.0448
860	0.0466	0.0499	0.0520	0.0557	0.0601
870	0.0652	0.0710	0.0775	0.0778	0.0739
880	0.0728	0.0747	0.0756	0.0874	0.0984
890	0.1123	0.1291	0.1453	0.1724	0.1985
900	0.2286	0.1948	0.1752	0.1712	0.1807
910	0.2059	0.2448	0.2958	0.3697	0.4548
920	0.5552	0.6709	0.8020	0.9793	1.1974
930	1.4209	1.6500	1.8853	2.1260	2.3727
940	2.6248	2.8829	3.1465	3.4160	3.6908
950	3.9728	4.4106	4.8129	5.1711	5.4857
960	5.7611	5.9994	6.1854	6.3176	6.4018
970	6.4574	6.4866	6.4910	6.4280	6.3271
980	6.2249	6.1210	6.0157	5.9007	5.7813
990	5.6674	5.5589	5.4957	5.3670	5.2776
1000	5.1765	5.0662	4.9560	4.8467	4.7382
1010	4.6289	4.5195	4.4056	4.2991	4.1883
1020	4.0779	3.9678	3.8563	3.7483	3.6377
1030	3.5268	3.4154	3.3036	3.1889	3.0728
1040	2.9586	2.8462	2.7356	2.6271	2.5201
1050	2.4149	2.3065	2.2053	2.1109	2.0240
1060	1.9409	1.8610	1.7845	1.7143	1.6484
1070	1.5838	1.5203	1.4580	1.3993	1.3427
1080	1.2855	1.2274	1.1688	1.1086	1.0474
1090	0.9864	0.9256	0.8649	0.8047	0.7445
1100	0.6839	0.6222	0.5605	0.4949	0.4284
1110	0.3650	0.3050	0.2486	0.1938	0.1405
1120	0.0939	0.0518	0.0153	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

SURVEY RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.236856E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0009	0.0049	0.0100	0.0163
370	0.0236	0.0321	0.0416	0.0571	0.0773
380	0.0970	0.1161	0.1347	0.1528	0.1704
390	0.1875	0.2042	0.2203	0.2361	0.2514
400	0.2664	0.2821	0.2971	0.3114	0.3249
410	0.3377	0.3464	0.3552	0.3643	0.3736
420	0.3831	0.3927	0.4026	0.4145	0.4281
430	0.4413	0.4541	0.4665	0.4784	0.4899
440	0.5009	0.5115	0.5217	0.5313	0.5405
450	0.5492	0.5550	0.5607	0.5663	0.5718
460	0.5772	0.5825	0.5877	0.5928	0.5978
470	0.6027	0.6076	0.6123	0.6166	0.6206
480	0.6248	0.6291	0.6334	0.6379	0.6425
490	0.6472	0.6527	0.6579	0.6629	0.6678
500	0.6724	0.6761	0.6758	0.6837	0.6876
510	0.6916	0.6960	0.7005	0.7049	0.7093
520	0.7138	0.7183	0.7227	0.7271	0.7315
530	0.7358	0.7402	0.7447	0.7492	0.7538
540	0.7584	0.7630	0.7677	0.7724	0.7772
550	0.7820	0.7875	0.7928	0.7980	0.8030
560	0.8079	0.8126	0.8172	0.8217	0.8260
570	0.8302	0.8341	0.8380	0.8427	0.8480
580	0.8531	0.8582	0.8631	0.8680	0.8727
590	0.8773	0.8823	0.8870	0.8913	0.8952
600	0.8989	0.9003	0.9017	0.9031	0.9044
610	0.9057	0.9070	0.9083	0.9095	0.9107
620	0.9118	0.9130	0.9141	0.9153	0.9167
630	0.9180	0.9192	0.9203	0.9213	0.9222
640	0.9231	0.9238	0.9244	0.9250	0.9254
650	0.9258	0.9253	0.9248	0.9244	0.9241
660	0.9237	0.9235	0.9232	0.9231	0.9229
670	0.9228	0.9228	0.9228	0.9230	0.9233
680	0.9236	0.9239	0.9242	0.9245	0.9249
690	0.9252	0.9255	0.9258	0.9261	0.9264
700	0.9267	0.9270	0.9273	0.9275	0.9278
710	0.9281	0.9283	0.9286	0.9289	0.9291
720	0.9294	0.9296	0.9299	0.9302	0.9306
730	0.9310	0.9314	0.9317	0.9320	0.9322
740	0.9325	0.9326	0.9328	0.9329	0.9329
750	0.9330	0.9329	0.9328	0.9325	0.9321

SURVEY RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9316	0.9311	0.9304	0.9296	0.9288
770	0.9279	0.9266	0.9255	0.9258	0.9273
780	0.9285	0.9295	0.9303	0.9309	0.9313
790	0.9315	0.9315	0.9313	0.9309	0.9303
800	0.9295	0.9264	0.9235	0.9207	0.9182
810	0.9159	0.9137	0.9118	0.9100	0.9085
820	0.9071	0.9060	0.9050	0.9048	0.9050
830	0.9053	0.9056	0.9058	0.9061	0.9063
840	0.9066	0.9068	0.9071	0.9072	0.9074
850	0.9078	0.9091	0.9106	0.9120	0.9136
860	0.9152	0.9169	0.9186	0.9205	0.9223
870	0.9243	0.9263	0.9283	0.9316	0.9358
880	0.9397	0.9434	0.9467	0.9496	0.9522
890	0.9545	0.9565	0.9582	0.9595	0.9605
900	0.9611	0.9617	0.9620	0.9618	0.9613
910	0.9603	0.9589	0.9571	0.9549	0.9523
920	0.9493	0.9459	0.9420	0.9374	0.9327
930	0.9282	0.9303	0.9312	0.9309	0.9294
940	0.9267	0.9228	0.9176	0.9112	0.9035
950	0.8946	0.8841	0.8734	0.8628	0.8521
960	0.8413	0.8304	0.8193	0.8081	0.7967
970	0.7853	0.7737	0.7620	0.7501	0.7381
980	0.7260	0.7139	0.7019	0.6857	0.6775
990	0.6654	0.6531	0.6408	0.6284	0.6159
1000	0.6033	0.5901	0.5769	0.5635	0.5501
1010	0.5366	0.5230	0.5094	0.4958	0.4822
1020	0.4685	0.4549	0.4413	0.4267	0.4116
1030	0.3968	0.3824	0.3684	0.3548	0.3415
1040	0.3286	0.3160	0.3039	0.2921	0.2806
1050	0.2695	0.2597	0.2501	0.2406	0.2314
1060	0.2222	0.2133	0.2045	0.1959	0.1874
1070	0.1791	0.1710	0.1630	0.1556	0.1485
1080	0.1415	0.1345	0.1276	0.1208	0.1140
1090	0.1072	0.1005	0.0939	0.0874	0.0809
1100	0.0744	0.0657	0.0574	0.0498	0.0425
1110	0.0357	0.0293	0.0236	0.0182	0.0133
1120	0.0099	0.0050	0.0015	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BLUE RESPONSIVITY, CAMERA SPARE

CAMERA CIRCLE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0000	0.0000
370	0.0000	0.0000	0.0586	0.2286	0.4509
380	0.6517	0.8310	0.5850	1.1262	1.2426
390	1.3392	1.3196	1.3267	1.3603	1.4204
400	1.5071	1.6647	1.8259	2.0029	2.1837
410	2.3707	2.6807	2.9424	3.1555	3.3192
420	3.4347	3.4373	3.4663	3.5158	3.5995
430	3.7372	4.1377	4.4565	4.8191	5.0987
440	5.3367	5.4802	5.6077	5.7185	5.8128
450	5.8907	5.9930	5.9057	5.9287	5.9621
460	6.0062	6.0633	6.1258	6.2056	6.2906
470	6.3947	6.5063	6.6135	6.7204	6.8078
480	6.8553	6.7501	6.6548	6.5690	6.4931
490	6.4296	6.7395	6.8763	6.8395	6.6326
500	6.2431	5.0833	4.0508	3.1485	2.3698
510	1.7230	1.3502	1.0253	0.7631	0.5490
520	0.3970	0.3125	0.2450	0.2049	0.1866
530	0.1693	0.1529	0.1373	0.1228	0.1091
540	0.0964	0.0846	0.0738	0.0639	0.0549
550	0.0469	0.0441	0.0415	0.0391	0.0369
560	0.0349	0.0330	0.0314	0.0299	0.0286
570	0.0275	0.0266	0.0259	0.0251	0.0244
580	0.0240	0.0237	0.0228	0.0240	0.0245
590	0.0253	0.0263	0.0275	0.0289	0.0306
600	0.0326	0.0237	0.0170	0.0123	0.0100
610	0.0098	0.0117	0.0159	0.0221	0.0304
620	0.0409	0.0535	0.0682	0.0902	0.1183
630	0.1467	0.1754	0.2043	0.2336	0.2631
640	0.2928	0.3229	0.3532	0.3838	0.4147
650	0.4458	0.5217	0.5859	0.6506	0.7035
660	0.7492	0.7872	0.8181	0.8414	0.8575
670	0.8661	0.8676	0.8618	0.8158	0.7377
680	0.6636	0.5933	0.5271	0.4648	0.4065
690	0.3519	0.3015	0.2551	0.2127	0.1739
700	0.1393	0.1266	0.1146	0.1033	0.0927
710	0.0828	0.0737	0.0652	0.0574	0.0503
720	0.0439	0.0382	0.0331	0.0308	0.0307
730	0.0306	0.0304	0.0302	0.0299	0.0296
740	0.0292	0.0287	0.0282	0.0277	0.0271
750	0.0264	0.0231	0.0202	0.0177	0.0156

BLUE RESPONSIVITY, CAMERA SPARE

CAMERA DICDF RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0140	0.0127	0.0119	0.0114	0.0113
770	0.0116	0.0123	0.0134	0.0179	0.0252
780	0.0317	0.0376	0.0427	0.0472	0.0510
790	0.0542	0.0566	0.0585	0.0597	0.0603
800	0.0602	0.0539	0.0460	0.0425	0.0373
810	0.0325	0.0280	0.0239	0.0202	0.0168
820	0.0137	0.0110	0.0086	0.0075	0.0075
830	0.0075	0.0074	0.0074	0.0074	0.0073
840	0.0073	0.0073	0.0073	0.0072	0.0072
850	0.0072	0.0063	0.0055	0.0049	0.0045
860	0.0042	0.0040	0.0040	0.0042	0.0045
870	0.0049	0.0055	0.0063	0.0083	0.0112
880	0.0140	0.0165	0.0189	0.0211	0.0230
890	0.0248	0.0263	0.0277	0.0298	0.0298
900	0.0305	0.0286	0.0269	0.0254	0.0240
910	0.0230	0.0221	0.0214	0.0205	0.0207
920	0.0207	0.0209	0.0213	0.0213	0.0211
930	0.0213	0.0221	0.0231	0.0247	0.0266
940	0.0289	0.0319	0.0350	0.0386	0.0428
950	0.0472	0.0595	0.0710	0.0817	0.0916
960	0.1007	0.1090	0.1164	0.1229	0.1287
970	0.1336	0.1376	0.1408	0.1397	0.1352
980	0.1309	0.1270	0.1233	0.1198	0.1167
990	0.1138	0.1111	0.1087	0.1066	0.1047
1000	0.1030	0.0984	0.0945	0.0915	0.0892
1010	0.0878	0.0872	0.0875	0.0885	0.0905
1020	0.0933	0.0969	0.1015	0.0981	0.0888
1030	0.0834	0.0817	0.0835	0.0898	0.0994
1040	0.1128	0.1300	0.1510	0.1757	0.2042
1050	0.2368	0.3204	0.4165	0.5014	0.5762
1060	0.6462	0.7083	0.7653	0.8164	0.8595
1070	0.8976	0.9296	0.9537	0.9617	0.9542
1080	0.9439	0.9314	0.9157	0.8973	0.8763
1090	0.8526	0.8261	0.7960	0.7649	0.7303
1100	0.6933	0.6120	0.5366	0.4645	0.3965
1110	0.3333	0.2741	0.2157	0.1706	0.1251
1120	0.0837	0.0470	0.0144	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0100	0.0000	0.0000
1150	0.0003				

GREEN RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0032	0.0062	0.0091	0.0119
360	0.0145	0.0170	0.0194	0.0217	0.0238
370	0.0258	0.0277	0.0295	0.0307	0.0316
380	0.0325	0.0333	0.0342	0.0350	0.0358
390	0.0366	0.0374	0.0382	0.0390	0.0398
400	0.0406	0.0413	0.0421	0.0428	0.0435
410	0.0443	0.0450	0.0458	0.0466	0.0473
420	0.0481	0.0489	0.0456	0.0494	0.0485
430	0.0478	0.0475	0.0475	0.0478	0.0485
440	0.0496	0.0509	0.0527	0.0547	0.0572
450	0.0600	0.0597	0.0603	0.0619	0.0644
460	0.0679	0.0724	0.0778	0.0841	0.0915
470	0.0998	0.1091	0.1194	0.1238	0.1325
480	0.1575	0.1073	0.1176	0.1887	0.3196
490	0.5108	0.9544	1.3650	1.7422	2.0860
500	2.3962	2.6262	2.8450	3.0520	3.2479
510	3.4331	3.5384	3.6647	3.8148	3.9860
520	4.1800	4.4241	4.6541	4.8466	5.0359
530	5.2616	5.7136	6.1114	6.4536	6.7440
540	6.9780	7.0965	7.1914	7.2642	7.3149
550	7.3453	7.4627	7.5000	7.4564	7.3361
560	7.1367	7.0107	6.7258	6.2942	5.7057
570	4.9708	3.7888	2.8346	2.1608	1.6859
580	1.3020	1.1163	0.9577	0.8263	0.7219
590	0.6437	0.6673	0.6619	0.6869	0.6827
600	0.6600	0.6259	0.5989	0.5574	0.5117
610	0.4622	0.3784	0.3053	0.2430	0.1915
620	0.1502	0.1262	0.1045	0.0907	0.0834
630	0.0765	0.0701	0.0642	0.0597	0.0537
640	0.0492	0.0452	0.0416	0.0384	0.0358
650	0.0335	0.0348	0.0360	0.0371	0.0382
660	0.0391	0.0400	0.0407	0.0414	0.0420
670	0.0425	0.0429	0.0433	0.0436	0.0439
680	0.0439	0.0440	0.0439	0.0438	0.0435
690	0.0432	0.0427	0.0422	0.0416	0.0409
700	0.0401	0.0385	0.0369	0.0353	0.0338
710	0.0324	0.0309	0.0296	0.0282	0.0269
720	0.0257	0.0244	0.0233	0.0216	0.0195
730	0.0176	0.0160	0.0146	0.0134	0.0124
740	0.0117	0.0112	0.0109	0.0108	0.0109
750	0.0113	0.0130	0.0147	0.0165	0.0182

GREEN RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0199	0.0217	0.0234	0.0251	0.0269
770	0.0286	0.0303	0.0321	0.0353	0.0397
780	0.0435	0.0469	0.0458	0.0521	0.0540
790	0.0554	0.0563	0.0567	0.0567	0.0561
800	0.0551	0.0490	0.0423	0.0380	0.0330
810	0.0283	0.0240	0.0201	0.0165	0.0132
820	0.0102	0.0076	0.0053	0.0043	0.0043
830	0.0043	0.0043	0.0043	0.0043	0.0042
840	0.0042	0.0042	0.0042	0.0042	0.0042
850	0.0041	0.0038	0.0036	0.0034	0.0032
860	0.0031	0.0031	0.0031	0.0031	0.0032
870	0.0033	0.0035	0.0037	0.0035	0.0030
880	0.0027	0.0025	0.0027	0.0030	0.0035
890	0.0043	0.0052	0.0064	0.0079	0.0095
900	0.0113	0.0167	0.0217	0.0265	0.0308
910	0.0349	0.0387	0.0421	0.0451	0.0478
920	0.0502	0.0523	0.0539	0.0540	0.0528
930	0.0517	0.0505	0.0455	0.0485	0.0475
940	0.0466	0.0457	0.0449	0.0441	0.0434
950	0.0427	0.0392	0.0362	0.0337	0.0319
960	0.0305	0.0299	0.0297	0.0300	0.0311
970	0.0326	0.0349	0.0375	0.0450	0.0562
980	0.0665	0.0759	0.0846	0.0925	0.0994
990	0.1056	0.1111	0.1157	0.1195	0.1226
1000	0.1249	0.1197	0.1147	0.1101	0.1059
1010	0.1020	0.0986	0.0955	0.0927	0.0903
1020	0.0884	0.0860	0.0857	0.0821	0.0767
1030	0.0727	0.0701	0.0680	0.0685	0.0703
1040	0.0730	0.0771	0.0825	0.0892	0.0974
1050	0.1068	0.1207	0.1355	0.1511	0.1675
1060	0.1848	0.2023	0.2217	0.2414	0.2620
1070	0.2834	0.3056	0.3287	0.3753	0.4395
1080	0.4982	0.5490	0.5943	0.6317	0.6634
1090	0.6871	0.7052	0.7152	0.7196	0.7159
1100	0.7072	0.6240	0.5466	0.4737	0.4041
1110	0.3403	0.2797	0.2249	0.1734	0.1276
1120	0.0852	0.0484	0.0151	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0002				

RED RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.209424E-05	0.0001	0.0003	0.0005	0.0009
360	0.0014	0.0019	0.0025	0.0033	0.0041
370	0.0050	0.0060	0.0071	0.0091	0.0117
380	0.0141	0.0164	0.0165	0.0205	0.0223
390	0.0239	0.0254	0.0267	0.0279	0.0290
400	0.0299	0.0299	0.0299	0.0299	0.0299
410	0.0298	0.0296	0.0294	0.0292	0.0290
420	0.0287	0.0283	0.0280	0.0274	0.0267
430	0.0260	0.0252	0.0245	0.0238	0.0231
440	0.0224	0.0218	0.0211	0.0204	0.0198
450	0.0191	0.0184	0.0177	0.0170	0.0163
460	0.0157	0.0151	0.0145	0.0140	0.0135
470	0.0130	0.0126	0.0122	0.0119	0.0115
480	0.0112	0.0110	0.0107	0.0105	0.0104
490	0.0103	0.0102	0.0101	0.0101	0.0101
500	0.0101	0.0104	0.0107	0.0111	0.0113
510	0.0116	0.0119	0.0122	0.0124	0.0127
520	0.0129	0.0131	0.0133	0.0130	0.0122
530	0.0116	0.0112	0.0109	0.0108	0.0109
540	0.0112	0.0117	0.0123	0.0131	0.0140
550	0.0152	0.0128	0.0115	0.0111	0.0117
560	0.0133	0.0159	0.0155	0.0240	0.0295
570	0.0359	0.0421	0.0510	0.0600	0.0729
580	0.0947	0.1168	0.1511	0.1974	0.2557
590	0.3268	0.4017	0.4527	0.5988	0.7198
600	0.8554	1.0271	1.2026	1.3821	1.5652
610	1.7505	1.9871	2.2033	2.4014	2.5797
620	2.7408	2.8931	3.0119	3.0902	3.1388
630	3.1600	3.0987	3.0367	2.9800	2.9227
640	2.8679	2.7854	2.7151	2.6663	2.6296
650	2.6057	2.6285	2.6500	2.6705	2.6898
660	2.7041	2.7237	2.7389	2.7537	2.7682
670	2.7821	2.7884	2.8046	2.8377	2.8779
680	2.9156	2.9921	3.0456	3.0727	3.0746
690	3.0522	2.9476	2.8460	2.7473	2.6515
700	2.5585	2.4790	2.3967	2.3117	2.2240
710	2.1329	2.0772	2.0009	1.9020	1.7816
720	1.6415	1.4548	1.2778	1.1046	0.9439
730	0.8065	0.7177	0.6377	0.5674	0.5079
740	0.4562	0.4326	0.4100	0.3884	0.3676
750	0.3490	0.3353	0.3223	0.3090	0.2951

RED RESPONSIVITY, CAMERA SPARE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2810	0.2664	0.2515	0.2362	0.2205
770	0.2046	0.1865	0.1702	0.1617	0.1594
780	0.1570	0.1542	0.1512	0.1480	0.1445
790	0.1408	0.1369	0.1327	0.1282	0.1236
800	0.1187	0.1093	0.1004	0.0921	0.0843
810	0.0770	0.0702	0.0640	0.0582	0.0529
820	0.0482	0.0438	0.0400	0.0379	0.0373
830	0.0367	0.0361	0.0356	0.0351	0.0346
840	0.0341	0.0337	0.0333	0.0329	0.0326
850	0.0322	0.0328	0.0333	0.0337	0.0339
860	0.0340	0.0339	0.0338	0.0335	0.0331
870	0.0325	0.0318	0.0310	0.0294	0.0270
880	0.0247	0.0225	0.0205	0.0186	0.0168
890	0.0151	0.0135	0.0120	0.0107	0.0094
900	0.0083	0.0078	0.0073	0.0068	0.0064
910	0.0060	0.0057	0.0054	0.0051	0.0049
920	0.0047	0.0046	0.0046	0.0048	0.0053
930	0.0057	0.0061	0.0065	0.0068	0.0071
940	0.0073	0.0075	0.0077	0.0078	0.0078
950	0.0078	0.0073	0.0068	0.0064	0.0059
960	0.0056	0.0052	0.0049	0.0047	0.0045
970	0.0043	0.0042	0.0041	0.0040	0.0040
980	0.0040	0.0040	0.0041	0.0043	0.0045
990	0.0047	0.0051	0.0054	0.0059	0.0064
1000	0.0069	0.0086	0.0102	0.0116	0.0129
1010	0.0141	0.0152	0.0161	0.0165	0.0175
1020	0.0180	0.0184	0.0187	0.0183	0.0173
1030	0.0164	0.0155	0.0146	0.0138	0.0131
1040	0.0124	0.0117	0.0110	0.0104	0.0098
1050	0.0093	0.0089	0.0085	0.0082	0.0078
1060	0.0075	0.0072	0.0069	0.0066	0.0064
1070	0.0062	0.0060	0.0058	0.0058	0.0060
1080	0.0061	0.0062	0.0062	0.0062	0.0062
1090	0.0062	0.0061	0.0060	0.0058	0.0057
1100	0.0054	0.0048	0.0042	0.0036	0.0031
1110	0.0026	0.0021	0.0017	0.0013	0.0010
1120	0.0007	0.0004	0.0001	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC3A)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.6806	0.6806	0.6806	0.6806	0.6806
360	0.6806	0.6806	0.6806	0.6806	0.6806
370	0.6806	0.6806	0.6806	0.6800	0.6790
380	0.6781	0.6775	0.6770	0.6768	0.6767
390	0.6769	0.6772	0.6778	0.6785	0.6795
400	0.6806	0.6835	0.6863	0.6891	0.6918
410	0.6944	0.6970	0.6995	0.7019	0.7043
420	0.7066	0.7088	0.7110	0.7128	0.7145
430	0.7161	0.7177	0.7194	0.7210	0.7226
440	0.7243	0.7259	0.7275	0.7292	0.7308
450	0.7324	0.7346	0.7366	0.7386	0.7405
460	0.7423	0.7440	0.7456	0.7471	0.7486
470	0.7500	0.7512	0.7524	0.7533	0.7540
480	0.7546	0.7552	0.7558	0.7564	0.7569
490	0.7575	0.7580	0.7585	0.7590	0.7595
500	0.7600	0.7603	0.7606	0.7609	0.7613
510	0.7616	0.7620	0.7624	0.7627	0.7632
520	0.7636	0.7640	0.7645	0.7653	0.7666
530	0.7676	0.7686	0.7695	0.7702	0.7708
540	0.7712	0.7716	0.7718	0.7719	0.7719
550	0.7717	0.7703	0.7690	0.7678	0.7666
560	0.7655	0.7644	0.7635	0.7626	0.7618
570	0.7610	0.7603	0.7597	0.7597	0.7600
580	0.7603	0.7605	0.7606	0.7606	0.7605
590	0.7604	0.7601	0.7597	0.7593	0.7587
600	0.7581	0.7566	0.7552	0.7538	0.7524
610	0.7511	0.7498	0.7486	0.7474	0.7462
620	0.7451	0.7440	0.7430	0.7423	0.7418
630	0.7413	0.7408	0.7401	0.7395	0.7387
640	0.7379	0.7370	0.7360	0.7350	0.7339
650	0.7328	0.7313	0.7297	0.7282	0.7266
660	0.7251	0.7235	0.7220	0.7204	0.7188
670	0.7172	0.7156	0.7139	0.7123	0.7106
680	0.7089	0.7072	0.7055	0.7038	0.7021
690	0.7004	0.6987	0.6970	0.6953	0.6936
700	0.6919	0.6904	0.6888	0.6873	0.6856
710	0.6840	0.6823	0.6807	0.6789	0.6772
720	0.6754	0.6736	0.6718	0.6699	0.6680
730	0.6661	0.6641	0.6621	0.6601	0.6581
740	0.6561	0.6541	0.6520	0.6500	0.6479
750	0.6458	0.6435	0.6413	0.6390	0.6368

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC3A)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.6346	0.6324	0.6302	0.6281	0.6259
770	0.6238	0.6216	0.6195	0.6172	0.6146
780	0.6121	0.6098	0.6075	0.6054	0.6033
790	0.6014	0.5995	0.5978	0.5962	0.5946
800	0.5932	0.5924	0.5916	0.5908	0.5900
810	0.5892	0.5884	0.5876	0.5868	0.5860
820	0.5853	0.5845	0.5838	0.5826	0.5813
830	0.5800	0.5789	0.5779	0.5770	0.5763
840	0.5757	0.5752	0.5748	0.5746	0.5745
850	0.5745	0.5754	0.5762	0.5771	0.5780
860	0.5789	0.5797	0.5806	0.5815	0.5824
870	0.5833	0.5842	0.5851	0.5859	0.5866
880	0.5873	0.5881	0.5889	0.5897	0.5906
890	0.5916	0.5926	0.5936	0.5947	0.5958
900	0.5970	0.5984	0.5999	0.6013	0.6028
910	0.6043	0.6058	0.6073	0.6088	0.6103
920	0.6118	0.6133	0.6149	0.6166	0.6185
930	0.6204	0.6222	0.6239	0.6256	0.6273
940	0.6288	0.6304	0.6318	0.6333	0.6346
950	0.6359	0.6370	0.6380	0.6390	0.6400
960	0.6410	0.6420	0.6429	0.6438	0.6447
970	0.6456	0.6464	0.6473	0.6480	0.6486
980	0.6492	0.6499	0.6506	0.6512	0.6519
990	0.6526	0.6533	0.6540	0.6548	0.6555
1000	0.6563	0.6579	0.6594	0.6608	0.6620
1010	0.6631	0.6640	0.6648	0.6655	0.6660
1020	0.6663	0.6666	0.6666	0.6658	0.6641
1030	0.6626	0.6612	0.6600	0.6589	0.6579
1040	0.6570	0.6563	0.6557	0.6552	0.6548
1050	0.6546	0.6554	0.6563	0.6570	0.6578
1060	0.6595	0.6592	0.6598	0.6605	0.6611
1070	0.6617	0.6622	0.6627	0.6632	0.6636
1080	0.6640	0.6644	0.6648	0.6651	0.6654
1090	0.6657	0.6660	0.6662	0.6664	0.6666
1100	0.6668	0.6668	0.6668	0.6668	0.6668
1110	0.6668	0.6668	0.6668	0.6668	0.6668
1120	0.6668	0.6668	0.6668	0.6668	0.6668
1130	0.6668	0.6669	0.6668	0.6668	0.6668
1140	0.6668	0.6668	0.6668	0.6668	0.6668
1150	0.6668				

PML RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	-.307953E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0044	0.0136
370	0.0247	0.0378	0.0528	0.0914	0.1207
380	0.1579	0.1931	0.2262	0.2575	0.2867
390	0.3141	0.3396	0.3632	0.3850	0.4049
400	0.4230	0.4269	0.4310	0.4355	0.4402
410	0.4453	0.4506	0.4563	0.4622	0.4685
420	0.4751	0.4820	0.4892	0.4983	0.5091
430	0.5196	0.5298	0.5355	0.5456	0.5592
440	0.5685	0.5775	0.5864	0.5949	0.6032
450	0.6113	0.6183	0.6251	0.6319	0.6385
460	0.6450	0.6514	0.6577	0.6639	0.6699
470	0.6759	0.6817	0.6873	0.6925	0.6973
480	0.7020	0.7067	0.7114	0.7161	0.7208
490	0.7254	0.7300	0.7346	0.7391	0.7437
500	0.7482	0.7524	0.7566	0.7609	0.7652
510	0.7695	0.7738	0.7781	0.7825	0.7869
520	0.7913	0.7957	0.8002	0.8046	0.8090
530	0.8135	0.8180	0.8225	0.8271	0.8317
540	0.8364	0.8411	0.8459	0.8506	0.8555
550	0.8603	0.8648	0.8693	0.8740	0.8787
560	0.8835	0.8883	0.8933	0.8983	0.9035
570	0.9087	0.9140	0.9194	0.9260	0.9335
580	0.9408	0.9478	0.9546	0.9610	0.9672
590	0.9731	0.9788	0.9841	0.9892	0.9940
600	0.9985	1.0015	1.0044	1.0072	1.0100
610	1.0127	1.0153	1.0178	1.0202	1.0226
620	1.0248	1.0270	1.0291	1.0316	1.0342
630	1.0366	1.0388	1.0408	1.0427	1.0443
640	1.0457	1.0470	1.0480	1.0489	1.0495
650	1.0500	1.0491	1.0482	1.0473	1.0464
660	1.0456	1.0447	1.0439	1.0431	1.0422
670	1.0414	1.0406	1.0399	1.0386	1.0371
680	1.0357	1.0345	1.0334	1.0325	1.0317
690	1.0311	1.0307	1.0304	1.0302	1.0302
700	1.0304	1.0325	1.0344	1.0362	1.0378
710	1.0392	1.0405	1.0416	1.0425	1.0432
720	1.0438	1.0442	1.0444	1.0439	1.0427
730	1.0416	1.0409	1.0395	1.0385	1.0375
740	1.0366	1.0357	1.0348	1.0339	1.0331
750	1.0323	1.0317	1.0312	1.0306	1.0300

BRI RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	1.0294	1.0288	1.0281	1.0275	1.0268
770	1.0261	1.0254	1.0247	1.0241	1.0235
780	1.0228	1.0221	1.0214	1.0206	1.0197
790	1.0189	1.0180	1.0170	1.0160	1.0150
800	1.0139	1.0128	1.0116	1.0105	1.0093
810	1.0081	1.0069	1.0056	1.0044	1.0031
820	1.0019	1.0006	0.9992	0.9973	0.9948
830	0.9924	0.9904	0.9885	0.9869	0.9855
840	0.9843	0.9834	0.9827	0.9822	0.9820
850	0.9819	0.9838	0.9856	0.9874	0.9891
860	0.9907	0.9923	0.9938	0.9952	0.9965
870	0.9978	0.9991	1.0002	1.0021	1.0046
880	1.0067	1.0085	1.0099	1.0110	1.0117
890	1.0120	1.0120	1.0116	1.0108	1.0098
900	1.0083	1.0047	1.0011	0.9973	0.9935
910	0.9896	0.9856	0.9815	0.9772	0.9729
920	0.9685	0.9641	0.9599	0.9563	0.9541
930	0.9512	0.9478	0.9438	0.9393	0.9341
940	0.9284	0.9220	0.9150	0.9074	0.8993
950	0.8904	0.8772	0.8639	0.8508	0.8377
960	0.8247	0.8118	0.7989	0.7662	0.7735
970	0.7609	0.7484	0.7360	0.7245	0.7138
980	0.7029	0.6918	0.6805	0.6690	0.6574
990	0.6456	0.6335	0.6213	0.6090	0.5964
1000	0.5836	0.5691	0.5547	0.5402	0.5259
1010	0.5116	0.4973	0.4832	0.4691	0.4552
1020	0.4413	0.4276	0.4140	0.4000	0.3856
1030	0.3717	0.3582	0.3450	0.3322	0.3198
1040	0.3079	0.2962	0.2849	0.2739	0.2633
1050	0.2530	0.2439	0.2351	0.2263	0.2177
1060	0.2092	0.2008	0.1926	0.1845	0.1766
1070	0.1688	0.1611	0.1536	0.1465	0.1398
1080	0.1331	0.1264	0.1159	0.1134	0.1069
1090	0.1005	0.0942	0.0880	0.0818	0.0757
1100	0.0696	0.0615	0.0538	0.0466	0.0398
1110	0.0334	0.0276	0.0220	0.0170	0.0125
1120	0.0084	0.0047	0.0014	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

8H2 RESPONSIVITY, CAMERA FC3A

CAMERA CICLE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.4286076E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0063	0.0150
370	0.0255	0.0378	0.0519	0.0783	0.1144
380	0.1487	0.1811	0.2118	0.2407	0.2678
390	0.2932	0.3169	0.3350	0.3594	0.3781
400	0.3952	0.3997	0.4044	0.4094	0.4146
410	0.4201	0.4258	0.4318	0.4380	0.4444
420	0.4511	0.4581	0.4653	0.4739	0.4837
430	0.4934	0.5029	0.5122	0.5214	0.5305
440	0.5394	0.5481	0.5567	0.5651	0.5734
450	0.5815	0.5894	0.5971	0.6048	0.6122
460	0.6195	0.6266	0.6335	0.6403	0.6469
470	0.6533	0.6596	0.6656	0.6712	0.6763
480	0.6813	0.6862	0.6911	0.6958	0.7005
490	0.7051	0.7096	0.7140	0.7183	0.7225
500	0.7267	0.7298	0.7330	0.7363	0.7397
510	0.7431	0.7466	0.7501	0.7537	0.7573
520	0.7610	0.7648	0.7686	0.7726	0.7768
530	0.7809	0.7851	0.7893	0.7936	0.7979
540	0.8022	0.8066	0.8110	0.8154	0.8199
550	0.8243	0.8293	0.8323	0.8364	0.8406
560	0.8450	0.8494	0.8540	0.8587	0.8634
570	0.8683	0.8733	0.8785	0.8849	0.8925
580	0.8997	0.9067	0.9134	0.9198	0.9259
590	0.9317	0.9372	0.9424	0.9473	0.9519
600	0.9562	0.9599	0.9616	0.9641	0.9666
610	0.9690	0.9713	0.9735	0.9756	0.9777
620	0.9796	0.9815	0.9833	0.9851	0.9870
630	0.9888	0.9904	0.9919	0.9933	0.9946
640	0.9957	0.9967	0.9977	0.9984	0.9991
650	0.9997	0.9999	1.0000	1.0000	1.0000
660	0.9998	0.9996	0.9993	0.9990	0.9985
670	0.9980	0.9974	0.9967	0.9952	0.9931
680	0.9911	0.9893	0.9877	0.9862	0.9850
690	0.9839	0.9830	0.9822	0.9817	0.9813
700	0.9810	0.9827	0.9842	0.9856	0.9868
710	0.9879	0.9889	0.9899	0.9905	0.9910
720	0.9915	0.9918	0.9919	0.9915	0.9907
730	0.9899	0.9890	0.9882	0.9874	0.9867
740	0.9859	0.9851	0.9844	0.9837	0.9830
750	0.9822	0.9818	0.9814	0.9809	0.9803

RAW RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9797	0.9791	0.9785	0.9778	0.9770
770	0.9763	0.9755	0.9746	0.9740	0.9734
780	0.9727	0.9719	0.9710	0.9700	0.9689
790	0.9678	0.9665	0.9651	0.9637	0.9672
800	0.9605	0.9580	0.9555	0.9531	0.9508
810	0.9485	0.9463	0.9441	0.9421	0.9401
820	0.9381	0.9363	0.9345	0.9325	0.9304
830	0.9284	0.9266	0.9250	0.9235	0.9221
840	0.9210	0.9200	0.9192	0.9185	0.9180
850	0.9177	0.9186	0.9195	0.9204	0.9212
860	0.9220	0.9228	0.9235	0.9242	0.9248
870	0.9254	0.9260	0.9265	0.9277	0.9295
880	0.9310	0.9322	0.9330	0.9336	0.9339
890	0.9338	0.9335	0.9329	0.9319	0.9307
900	0.9290	0.9258	0.9224	0.9189	0.9154
910	0.9117	0.9080	0.9042	0.9003	0.8963
920	0.8922	0.8880	0.8837	0.8807	0.8788
930	0.8762	0.8731	0.8694	0.8651	0.8603
940	0.8549	0.8489	0.8423	0.8351	0.8274
950	0.8191	0.8065	0.7938	0.7813	0.7688
960	0.7564	0.7441	0.7319	0.7197	0.7076
970	0.6955	0.6836	0.6717	0.6606	0.6501
980	0.6394	0.6286	0.6177	0.6066	0.5955
990	0.5842	0.5727	0.5612	0.5495	0.5377
1000	0.5257	0.5124	0.4992	0.4860	0.4729
1010	0.4598	0.4467	0.4328	0.4210	0.4082
1020	0.3956	0.3831	0.3707	0.3579	0.3449
1030	0.3322	0.3199	0.3080	0.2964	0.2851
1040	0.2742	0.2636	0.2533	0.2433	0.2336
1050	0.2242	0.2158	0.2075	0.1993	0.1913
1060	0.1835	0.1758	0.1682	0.1609	0.1536
1070	0.1466	0.1397	0.1329	0.1267	0.1209
1080	0.1151	0.1094	0.1037	0.0981	0.0926
1090	0.0871	0.0816	0.0762	0.0709	0.0656
1100	0.0604	0.0533	0.0467	0.0404	0.0345
1110	0.0290	0.0239	0.0192	0.0148	0.0108
1120	0.0073	0.0040	0.0013	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

[illegible] RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.4146055E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0065	0.0156	0.0267
370	0.0398	0.0550	0.0722	0.1043	0.1484
380	0.1900	0.2291	0.2660	0.3007	0.3330
390	0.3631	0.3911	0.4169	0.4404	0.4618
400	0.4812	0.4837	0.4865	0.4896	0.4932
410	0.4971	0.5015	0.5062	0.5113	0.5168
420	0.5227	0.5290	0.5357	0.5448	0.5557
430	0.5665	0.5770	0.5872	0.5972	0.6070
440	0.6165	0.6257	0.6347	0.6435	0.6520
450	0.6602	0.6672	0.6741	0.6809	0.6877
460	0.6943	0.7008	0.7073	0.7136	0.7198
470	0.7259	0.7319	0.7378	0.7435	0.7489
480	0.7543	0.7596	0.7647	0.7699	0.7749
490	0.7798	0.7847	0.7855	0.7942	0.7988
500	0.8033	0.8070	0.8107	0.8144	0.8182
510	0.8221	0.8260	0.8300	0.8340	0.8381
520	0.8423	0.8465	0.8507	0.8553	0.8602
530	0.8651	0.8699	0.8747	0.8794	0.8842
540	0.8889	0.8935	0.8981	0.9027	0.9073
550	0.9118	0.9149	0.9182	0.9217	0.9253
560	0.9291	0.9331	0.9373	0.9416	0.9461
570	0.9508	0.9557	0.9607	0.9675	0.9755
580	0.9833	0.9908	0.9979	1.0047	1.0112
590	1.0174	1.0233	1.0288	1.0340	1.0389
600	1.0434	1.0450	1.0481	1.0505	1.0528
610	1.0551	1.0574	1.0597	1.0620	1.0643
620	1.0665	1.0688	1.0711	1.0740	1.0775
630	1.0807	1.0837	1.0865	1.0890	1.0913
640	1.0934	1.0952	1.0967	1.0981	1.0991
650	1.1000	1.0994	1.0988	1.0981	1.0974
660	1.0967	1.0960	1.0952	1.0944	1.0936
670	1.0927	1.0919	1.0910	1.0895	1.0875
680	1.0857	1.0841	1.0826	1.0813	1.0802
690	1.0792	1.0784	1.0778	1.0773	1.0770
700	1.0769	1.0791	1.0811	1.0829	1.0845
710	1.0858	1.0868	1.0877	1.0883	1.0886
720	1.0888	1.0887	1.0883	1.0868	1.0843
730	1.0918	1.0795	1.0774	1.0753	1.0733
740	1.0715	1.0698	1.0681	1.0666	1.0652
750	1.0639	1.0635	1.0631	1.0626	1.0621

BP3 RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	1.0615	1.0609	1.0602	1.0596	1.0588
770	1.0580	1.0572	1.0564	1.0553	1.0540
780	1.0528	1.0515	1.0503	1.0492	1.0480
790	1.0469	1.0457	1.0447	1.0436	1.0426
800	1.0416	1.0412	1.0407	1.0402	1.0396
810	1.0389	1.0382	1.0374	1.0366	1.0357
820	1.0348	1.0338	1.0328	1.0309	1.0284
830	1.0261	1.0240	1.0222	1.0205	1.0191
840	1.0178	1.0168	1.0160	1.0154	1.0150
850	1.0149	1.0164	1.0175	1.0194	1.0208
860	1.0221	1.0233	1.0245	1.0256	1.0267
870	1.0276	1.0285	1.0293	1.0308	1.0328
880	1.0344	1.0357	1.0367	1.0374	1.0377
890	1.0376	1.0373	1.0366	1.0355	1.0341
900	1.0324	1.0288	1.0251	1.0214	1.0174
910	1.0134	1.0093	1.0051	1.0008	0.9964
920	0.9919	0.9872	0.9825	0.9791	0.9766
930	0.9736	0.9699	0.9657	0.9609	0.9555
940	0.9495	0.9429	0.9358	0.9280	0.9196
950	0.9106	0.8974	0.8842	0.8710	0.8579
960	0.8448	0.8319	0.8188	0.8059	0.7930
970	0.7802	0.7674	0.7548	0.7427	0.7313
980	0.7197	0.7080	0.6961	0.6841	0.6720
990	0.6597	0.6472	0.6347	0.6219	0.6091
1000	0.5960	0.5818	0.5676	0.5534	0.5392
1010	0.5250	0.5108	0.4967	0.4827	0.4687
1020	0.4548	0.4410	0.4272	0.4128	0.3980
1030	0.3836	0.3696	0.3561	0.3429	0.3301
1040	0.3177	0.3056	0.2939	0.2826	0.2716
1050	0.2609	0.2515	0.2423	0.2332	0.2243
1060	0.2155	0.2068	0.1983	0.1900	0.1817
1070	0.1737	0.1658	0.1581	0.1508	0.1440
1080	0.1372	0.1305	0.1236	0.1172	0.1106
1090	0.1041	0.0976	0.0912	0.0849	0.0786
1100	0.0724	0.0639	0.0559	0.0484	0.0413
1110	0.0347	0.0286	0.0229	0.0177	0.0130
1120	0.0086	0.0048	0.0015	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BP4 RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0001	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0075	0.0175
370	0.0296	0.0436	0.0597	0.0903	0.1322
380	0.1718	0.2093	0.2446	0.2778	0.3088
390	0.3379	0.3648	0.3858	0.4128	0.4337
400	0.4528	0.4563	0.4601	0.4643	0.4688
410	0.4736	0.4787	0.4842	0.4901	0.4962
420	0.5027	0.5096	0.5168	0.5259	0.5365
430	0.5470	0.5572	0.5674	0.5773	0.5871
440	0.5967	0.6062	0.6154	0.6245	0.6335
450	0.6422	0.6509	0.6553	0.6676	0.6757
460	0.6836	0.6913	0.6987	0.7060	0.7131
470	0.7200	0.7267	0.7331	0.7389	0.7440
480	0.7491	0.7541	0.7591	0.7640	0.7688
490	0.7735	0.7782	0.7828	0.7874	0.7918
500	0.7963	0.8000	0.8038	0.8077	0.8115
510	0.8154	0.8193	0.8232	0.8272	0.8311
520	0.8351	0.8392	0.8432	0.8473	0.8514
530	0.8555	0.8596	0.8638	0.8681	0.8723
540	0.8766	0.8809	0.8853	0.8897	0.8941
550	0.8985	0.9021	0.9058	0.9097	0.9138
560	0.9180	0.9224	0.9270	0.9317	0.9365
570	0.9416	0.9468	0.9522	0.9594	0.9680
580	0.9762	0.9841	0.9916	0.9988	1.0055
590	1.0119	1.0179	1.0235	1.0288	1.0336
600	1.0381	1.0396	1.0413	1.0429	1.0446
610	1.0463	1.0481	1.0459	1.0518	1.0537
620	1.0596	1.0576	1.0596	1.0626	1.0662
630	1.0695	1.0727	1.0756	1.0782	1.0806
640	1.0828	1.0847	1.0864	1.0878	1.0890
650	1.0900	1.0895	1.0890	1.0884	1.0878
660	1.0872	1.0866	1.0859	1.0852	1.0845
670	1.0838	1.0830	1.0822	1.0809	1.0792
680	1.0776	1.0762	1.0749	1.0737	1.0727
690	1.0718	1.0710	1.0704	1.0699	1.0696
700	1.0694	1.0713	1.0730	1.0745	1.0758
710	1.0768	1.0776	1.0781	1.0785	1.0786
720	1.0785	1.0782	1.0776	1.0758	1.0730
730	1.0703	1.0678	1.0654	1.0631	1.0610
740	1.0590	1.0571	1.0554	1.0538	1.0523
750	1.0509	1.0506	1.0502	1.0498	1.0494

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PF4 RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
760	1.0488	1.0483	1.0477	1.0471	1.0464
770	1.0457	1.0449	1.0441	1.0431	1.0419
780	1.0408	1.0396	1.0384	1.0373	1.0362
790	1.0351	1.0340	1.0325	1.0319	1.0308
800	1.0298	1.0296	1.0293	1.0289	1.0284
810	1.0277	1.0269	1.0261	1.0251	1.0240
820	1.0228	1.0215	1.0201	1.0175	1.0139
830	1.0106	1.0076	1.0048	1.0024	1.0002
840	0.9983	0.9966	0.9953	0.9942	0.9933
850	0.9928	0.9946	0.9963	0.9980	0.9995
860	1.0010	1.0023	1.0035	1.0047	1.0057
870	1.0066	1.0075	1.0082	1.0094	1.0109
880	1.0121	1.0131	1.0137	1.0140	1.0140
890	1.0136	1.0130	1.0121	1.0109	1.0093
900	1.0074	1.0039	1.0004	0.9967	0.9929
910	0.9890	0.9850	0.9808	0.9766	0.9723
920	0.9678	0.9632	0.9585	0.9551	0.9525
930	0.9494	0.9457	0.9414	0.9366	0.9312
940	0.9252	0.9186	0.9115	0.9038	0.8954
950	0.8866	0.8734	0.8603	0.8473	0.8343
960	0.8213	0.8085	0.7957	0.7829	0.7702
970	0.7576	0.7451	0.7327	0.7209	0.7099
980	0.6986	0.6872	0.6757	0.6641	0.6523
990	0.6403	0.6282	0.6159	0.6036	0.5910
1000	0.5783	0.5643	0.5502	0.5362	0.5223
1010	0.5083	0.4945	0.4807	0.4670	0.4533
1020	0.4398	0.4264	0.4131	0.3992	0.3851
1030	0.3714	0.3580	0.3461	0.3325	0.3202
1040	0.3084	0.2968	0.2856	0.2748	0.2643
1050	0.2540	0.2451	0.2363	0.2276	0.2190
1060	0.2105	0.2022	0.1940	0.1860	0.1781
1070	0.1703	0.1627	0.1552	0.1492	0.1415
1080	0.1348	0.1282	0.1217	0.1152	0.1088
1090	0.1024	0.0961	0.0858	0.0836	0.0774
1100	0.0713	0.0630	0.0551	0.0477	0.0407
1110	0.0343	0.0282	0.0227	0.0174	0.0128
1120	0.0086	0.0048	0.0015	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	.204132E-04				

BLUE RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0002	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0000	0.0000
370	0.0000	0.0000	0.0608	0.3462	0.7202
380	1.0590	1.3628	1.6320	1.8672	2.0682
390	2.2372	2.2396	2.2737	2.3396	2.4376
400	2.5668	2.8223	3.0676	3.3026	3.5272
410	3.7407	4.0013	4.2232	4.4032	4.5435
420	4.6433	4.6445	4.6759	4.7164	4.7971
430	4.9454	5.4481	5.8869	6.2656	6.5823
440	6.8367	6.9040	6.9654	7.0330	7.0949
450	7.1551	7.1858	7.2296	7.2871	7.3579
460	7.4423	7.5929	7.7315	7.8573	7.9709
470	8.0719	8.1482	8.2274	8.3399	8.4395
480	8.4700	8.3625	8.2246	8.0546	7.8511
490	7.6214	7.5348	7.3233	6.9941	6.5424
500	5.9622	4.7136	3.6173	2.6721	1.8765
510	1.2379	0.9800	0.7527	0.5713	0.4210
520	0.3058	0.2504	0.2004	0.1703	0.1566
530	0.1435	0.1311	0.1193	0.1081	0.0976
540	0.0878	0.0786	0.0702	0.0623	0.0552
550	0.0488	0.0457	0.0428	0.0402	0.0378
560	0.0356	0.0337	0.0320	0.0305	0.0292
570	0.0282	0.0274	0.0268	0.0259	0.0248
580	0.0241	0.0238	0.0239	0.0244	0.0254
590	0.0267	0.0285	0.0307	0.0332	0.0362
600	0.0397	0.0235	0.0113	0.0029	0.0000
610	0.0000	0.0011	0.0082	0.0192	0.0339
620	0.0524	0.0746	0.1006	0.1465	0.2083
630	0.2684	0.3269	0.3837	0.4388	0.4922
640	0.5438	0.5939	0.6422	0.6888	0.7335
650	0.7767	0.8618	0.9374	1.0033	1.0599
660	1.1071	1.1449	1.1734	1.1929	1.2028
670	1.2040	1.1960	1.1789	1.1099	0.9993
680	0.3947	0.7963	0.7037	0.6167	0.5357
690	0.4606	0.3912	0.3272	0.2693	0.2169
700	0.1698	0.1546	0.1404	0.1268	0.1141
710	0.1022	0.0911	0.0808	0.0714	0.0627
720	0.0547	0.0477	0.0413	0.0380	0.0371
730	0.0362	0.0353	0.0344	0.0335	0.0326
740	0.0317	0.0309	0.0300	0.0292	0.0283
750	0.0275	0.0244	0.0217	0.0195	0.0176

BLUE RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0162	0.0151	0.0145	0.0142	0.0143
770	0.0148	0.0156	0.0165	0.0217	0.0294
780	0.0363	0.0424	0.0478	0.0524	0.0564
790	0.0596	0.0621	0.0639	0.0650	0.0654
800	0.0651	0.0581	0.0514	0.0452	0.0393
810	0.0338	0.0288	0.0241	0.0198	0.0159
820	0.0124	0.0092	0.0065	0.0052	0.0050
830	0.0049	0.0047	0.0046	0.0046	0.0046
840	0.0046	0.0046	0.0047	0.0048	0.0049
850	0.0050	0.0048	0.0046	0.0045	0.0046
860	0.0048	0.0050	0.0054	0.0060	0.0066
870	0.0073	0.0082	0.0092	0.0113	0.0144
880	0.0173	0.0199	0.0223	0.0245	0.0264
890	0.0281	0.0295	0.0307	0.0317	0.0324
900	0.0329	0.0307	0.0287	0.0269	0.0252
910	0.0237	0.0224	0.0212	0.0202	0.0194
920	0.0188	0.0183	0.0180	0.0165	0.0153
930	0.0142	0.0136	0.0134	0.0139	0.0148
940	0.0162	0.0181	0.0206	0.0235	0.0270
950	0.0310	0.0435	0.0553	0.0661	0.0761
960	0.0854	0.0937	0.1012	0.1077	0.1134
970	0.1183	0.1223	0.1254	0.1242	0.1194
980	0.1149	0.1106	0.1066	0.1025	0.0994
990	0.0962	0.0933	0.0906	0.0882	0.0861
1000	0.0843	0.0796	0.0757	0.0726	0.0703
1010	0.0698	0.0682	0.0664	0.0694	0.0713
1020	0.0741	0.0777	0.0821	0.0777	0.0672
1030	0.0608	0.0593	0.0598	0.0653	0.0744
1040	0.0876	0.1050	0.1260	0.1512	0.1802
1050	0.2122	0.3105	0.4021	0.4972	0.5657
1060	0.6378	0.7037	0.7627	0.8150	0.8608
1070	0.8998	0.9325	0.9582	0.9647	0.9543
1080	0.9414	0.9260	0.9083	0.8879	0.9651
1090	0.8399	0.8122	0.7821	0.7494	0.7143
1100	0.6765	0.5975	0.5229	0.4526	0.3866
1110	0.3249	0.2685	0.2145	0.1662	0.1222
1120	0.0822	0.0456	0.0146	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

GREEN RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0040	0.0079	0.0117	0.0154
360	0.0189	0.0223	0.0256	0.0288	0.0318
370	0.0347	0.0375	0.0401	0.0430	0.0459
380	0.0487	0.0511	0.0534	0.0554	0.0572
390	0.0588	0.0601	0.0612	0.0621	0.0627
400	0.0632	0.0611	0.0592	0.0574	0.0558
410	0.0543	0.0530	0.0519	0.0509	0.0501
420	0.0495	0.0490	0.0487	0.0480	0.0470
430	0.0464	0.0462	0.0463	0.0468	0.0477
440	0.0490	0.0507	0.0527	0.0552	0.0580
450	0.0613	0.0624	0.0643	0.0671	0.0707
460	0.0752	0.0805	0.0867	0.0938	0.1017
470	0.1105	0.1202	0.1308	0.1344	0.1425
480	0.1684	0.1025	0.1079	0.1850	0.3338
490	0.5513	1.0469	1.5124	1.9476	2.3512
500	2.7264	3.0393	3.3351	3.6170	3.8840
510	4.1366	4.3010	4.4864	4.6933	4.9213
520	5.1698	5.4672	5.7500	5.9937	6.2386
530	6.5229	7.0853	7.5739	7.9906	8.3352
540	8.6084	8.6951	8.7455	8.8009	8.8398
550	8.8719	9.0896	9.1893	9.1648	9.0262
560	8.7645	8.5056	8.0597	7.4626	6.6795
570	5.7233	4.2483	3.0745	2.2646	1.7299
580	1.3037	1.1193	0.9610	0.8311	0.7289
590	0.6519	0.6790	0.6962	0.7032	0.6999
600	0.6865	0.6510	0.6113	0.5676	0.5197
610	0.4684	0.3825	0.3017	0.2438	0.1909
620	0.1482	0.1730	0.1005	0.0865	0.0795
630	0.0730	0.0669	0.0612	0.0560	0.0513
640	0.0470	0.0432	0.0398	0.0368	0.0343
650	0.0322	0.0338	0.0353	0.0366	0.0378
660	0.0389	0.0398	0.0406	0.0413	0.0419
670	0.0424	0.0427	0.0429	0.0428	0.0424
680	0.0419	0.0414	0.0408	0.0402	0.0396
690	0.0389	0.0382	0.0375	0.0367	0.0359
700	0.0350	0.0337	0.0325	0.0313	0.0301
710	0.0290	0.0278	0.0267	0.0256	0.0245
720	0.0235	0.0224	0.0214	0.0198	0.0178
730	0.0160	0.0145	0.0131	0.0120	0.0110
740	0.0103	0.0090	0.0055	0.0094	0.0095
750	0.0098	0.0112	0.0127	0.0141	0.0156

GREEN RESPONSIVITY, CAMERA FC3A
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0172	0.0187	0.0203	0.0219	0.0236
770	0.0252	0.0269	0.0286	0.0315	0.0365
780	0.0406	0.0441	0.0470	0.0495	0.0515
790	0.0529	0.0539	0.0544	0.0545	0.0539
800	0.0530	0.0469	0.0412	0.0359	0.0308
810	0.0262	0.0218	0.0178	0.0141	0.0107
820	0.0077	0.0050	0.0027	0.0017	0.0016
830	0.0016	0.0016	0.0016	0.0016	0.0015
840	0.0015	0.0015	0.0015	0.0015	0.0015
850	0.0015	0.0013	0.0012	0.0011	0.0010
860	0.0010	0.0010	0.0010	0.0010	0.0011
870	0.0012	0.0013	0.0014	0.0012	0.0008
880	0.0005	0.0004	0.0004	0.0005	0.0008
890	0.0013	0.0019	0.0026	0.0035	0.0046
900	0.0058	0.0095	0.0131	0.0163	0.0193
910	0.0221	0.0246	0.0269	0.0288	0.0306
920	0.0321	0.0333	0.0343	0.0339	0.0326
930	0.0312	0.0300	0.0288	0.0277	0.0266
940	0.0257	0.0248	0.0239	0.0231	0.0224
950	0.0218	0.0186	0.0159	0.0138	0.0121
960	0.0111	0.0105	0.0105	0.0110	0.0121
970	0.0137	0.0159	0.0186	0.0257	0.0362
980	0.0460	0.0551	0.0635	0.0711	0.0781
990	0.0844	0.0899	0.0947	0.0988	0.1021
1000	0.1048	0.1012	0.0979	0.0947	0.0918
1010	0.0890	0.0865	0.0841	0.0820	0.0801
1020	0.0784	0.0770	0.0757	0.0712	0.0639
1030	0.0583	0.0540	0.0512	0.0498	0.0499
1040	0.0514	0.0543	0.0564	0.0642	0.0712
1050	0.0797	0.0870	0.0961	0.1072	0.1201
1060	0.1350	0.1519	0.1706	0.1913	0.2139
1070	0.2384	0.2649	0.2932	0.3552	0.4431
1080	0.5228	0.5930	0.6551	0.7088	0.7531
1090	0.7891	0.8168	0.8349	0.8447	0.8461
1100	0.8386	0.7403	0.6477	0.5615	0.4793
1110	0.4025	0.3314	0.2654	0.2058	0.1505
1120	0.1008	0.0562	0.0182	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

RED RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.765829E-05	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0000	0.0000
370	.250301E-04	0.0016	0.0034	0.0077	0.0140
380	0.0198	0.0251	0.0299	0.0343	0.0382
390	0.0417	0.0448	0.0474	0.0495	0.0512
400	0.0525	0.0504	0.0484	0.0464	0.0444
410	0.0425	0.0406	0.0387	0.0369	0.0351
420	0.0334	0.0316	0.0300	0.0282	0.0265
430	0.0248	0.0232	0.0216	0.0202	0.0188
440	0.0175	0.0162	0.0151	0.0140	0.0130
450	0.0121	0.0115	0.0110	0.0104	0.0100
460	0.0095	0.0092	0.0088	0.0085	0.0083
470	0.0081	0.0079	0.0078	0.0080	0.0083
480	0.0087	0.0090	0.0092	0.0095	0.0098
490	0.0100	0.0102	0.0104	0.0106	0.0107
500	0.0109	0.0109	0.0109	0.0109	0.0109
510	0.0109	0.0109	0.0109	0.0109	0.0109
520	0.0109	0.0109	0.0109	0.0106	0.0100
530	0.0096	0.0092	0.0090	0.0089	0.0089
540	0.0090	0.0092	0.0096	0.0100	0.0106
550	0.0113	0.0089	0.0074	0.0067	0.0068
560	0.0077	0.0094	0.0119	0.0152	0.0193
570	0.0242	0.0290	0.0358	0.0420	0.0513
580	0.0678	0.0790	0.1028	0.1394	0.1887
590	0.2525	0.3108	0.3513	0.4912	0.6119
600	0.7531	0.9463	1.1435	1.3447	1.5504
610	1.7589	2.0274	2.2726	2.4950	2.6930
620	2.0699	3.0339	3.1610	3.2492	3.3073
630	3.3400	3.2893	3.2363	3.1872	3.1359
640	3.0856	3.0037	2.9365	2.8852	2.8482
650	2.8250	2.8514	2.8753	2.8966	2.9155
660	2.9321	2.9420	2.9515	2.9607	2.9696
670	2.9791	2.9780	2.9889	3.0192	3.0586
680	3.0954	3.1784	3.2313	3.2581	3.2576
690	3.2299	3.1127	2.9990	2.8890	2.7825
700	2.6794	2.5941	2.5053	2.4131	2.3175
710	2.2177	2.1645	2.0840	1.9753	1.8386
720	1.6764	1.4439	1.2414	1.0514	0.8834
730	0.7429	0.6567	0.5806	0.5129	0.4560
740	0.4085	0.3877	0.3677	0.3486	0.3302
750	0.3126	0.3002	0.2876	0.2747	0.2617

RED RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2484	0.2349	0.2211	0.2072	0.1930
770	0.1787	0.1628	0.1464	0.1407	0.1383
780	0.1357	0.1329	0.1300	0.1269	0.1237
790	0.1203	0.1167	0.1129	0.1090	0.1048
800	0.1006	0.0928	0.0854	0.0784	0.0718
810	0.0657	0.0599	0.0546	0.0497	0.0451
820	0.0410	0.0372	0.0339	0.0321	0.0315
830	0.0309	0.0303	0.0298	0.0293	0.0287
840	0.0282	0.0277	0.0272	0.0267	0.0262
850	0.0258	0.0258	0.0257	0.0256	0.0254
860	0.0251	0.0247	0.0243	0.0238	0.0232
870	0.0225	0.0218	0.0210	0.0195	0.0175
880	0.0156	0.0138	0.0122	0.0106	0.0092
890	0.0079	0.0066	0.0055	0.0045	0.0036
900	0.0028	0.0028	0.0028	0.0028	0.0028
910	0.0028	0.0028	0.0028	0.0028	0.0028
920	0.0028	0.0029	0.0028	0.0028	0.0028
930	0.0027	0.0027	0.0027	0.0027	0.0027
940	0.0027	0.0027	0.0027	0.0027	0.0027
950	0.0027	0.0027	0.0027	0.0026	0.0026
960	0.0026	0.0026	0.0026	0.0026	0.0026
970	0.0026	0.0026	0.0025	0.0023	0.0020
980	0.0016	0.0014	0.0012	0.0011	0.0011
990	0.0011	0.0013	0.0015	0.0017	0.0020
1000	0.0024	0.0039	0.0053	0.0067	0.0079
1010	0.0090	0.0099	0.0108	0.0115	0.0122
1020	0.0127	0.0131	0.0134	0.0131	0.0123
1030	0.0116	0.0110	0.0103	0.0097	0.0091
1040	0.0086	0.0081	0.0076	0.0071	0.0067
1050	0.0062	0.0059	0.0056	0.0054	0.0051
1060	0.0048	0.0046	0.0044	0.0041	0.0039
1070	0.0038	0.0036	0.0034	0.0034	0.0034
1080	0.0033	0.0033	0.0033	0.0033	0.0032
1090	0.0031	0.0031	0.0030	0.0029	0.0027
1100	0.0026	0.0023	0.0020	0.0018	0.0015
1110	0.0013	0.0010	0.0008	0.0006	0.0005
1120	0.0003	0.0002	0.0001	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	.285140E-05				

IPL RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0017	0.0034	0.0049	0.0064
360	0.0079	0.0092	0.0105	0.0117	0.0128
370	0.0138	0.0148	0.0157	0.0162	0.0165
380	0.0168	0.0171	0.0174	0.0177	0.0180
390	0.0184	0.0188	0.0192	0.0196	0.0200
400	0.0204	0.0216	0.0226	0.0236	0.0244
410	0.0252	0.0258	0.0264	0.0269	0.0272
420	0.0275	0.0276	0.0277	0.0273	0.0266
430	0.0259	0.0252	0.0245	0.0237	0.0230
440	0.0222	0.0214	0.0207	0.0199	0.0190
450	0.0182	0.0168	0.0155	0.0142	0.0130
460	0.0120	0.0110	0.0101	0.0093	0.0086
470	0.0080	0.0075	0.0070	0.0070	0.0073
480	0.0075	0.0078	0.0081	0.0084	0.0087
490	0.0089	0.0092	0.0095	0.0098	0.0101
500	0.0104	0.0108	0.0112	0.0116	0.0120
510	0.0123	0.0127	0.0130	0.0132	0.0135
520	0.0137	0.0139	0.0141	0.0141	0.0140
530	0.0140	0.0139	0.0139	0.0139	0.0138
540	0.0138	0.0139	0.0139	0.0139	0.0140
550	0.0140	0.0137	0.0135	0.0134	0.0133
560	0.0133	0.0134	0.0136	0.0138	0.0142
570	0.0146	0.0150	0.0156	0.0169	0.0189
580	0.0206	0.0223	0.0237	0.0251	0.0262
590	0.0272	0.0281	0.0288	0.0293	0.0297
600	0.0299	0.0289	0.0280	0.0271	0.0262
610	0.0253	0.0245	0.0237	0.0229	0.0221
620	0.0214	0.0206	0.0199	0.0192	0.0185
630	0.0177	0.0171	0.0164	0.0158	0.0153
640	0.0147	0.0143	0.0138	0.0134	0.0130
650	0.0127	0.0126	0.0125	0.0124	0.0123
660	0.0122	0.0121	0.0120	0.0119	0.0118
670	0.0117	0.0116	0.0115	0.0113	0.0111
680	0.0108	0.0106	0.0105	0.0103	0.0102
690	0.0102	0.0101	0.0101	0.0101	0.0102
700	0.0103	0.0101	0.0101	0.0101	0.0102
710	0.0103	0.0106	0.0109	0.0112	0.0117
720	0.0122	0.0128	0.0135	0.0114	0.0072
730	0.0040	0.0019	0.0009	0.0008	0.0017
740	0.0037	0.0067	0.0106	0.0155	0.0214
750	0.0284	0.0256	0.0257	0.0285	0.0342

TRI RESPCNSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0426	0.0537	0.0674	0.0835	0.1029
770	0.1246	0.1489	0.1757	0.1754	0.1525
780	0.1439	0.1483	0.1642	0.1940	0.2363
790	0.2899	0.3569	0.4362	0.5265	0.6304
800	0.7456	0.8714	1.0116	1.1513	1.2985
810	1.4777	1.6866	1.5227	2.2180	2.5533
820	2.8913	3.2327	3.5768	4.0008	4.4541
830	4.8392	5.1558	5.4044	5.5516	5.6253
840	5.6597	5.6583	5.6178	5.5244	5.3992
850	5.2684	5.1115	4.9754	4.8676	4.7807
860	4.7166	4.6809	4.6682	4.6930	4.7466
870	4.8169	4.9041	5.0071	5.1815	5.3932
880	5.5714	5.7181	5.8287	5.9658	6.0767
890	6.1100	6.0652	5.9264	5.7046	5.4070
900	5.0754	4.6743	4.2765	3.8463	3.4054
910	3.0014	2.6332	2.3001	2.0242	1.7910
920	1.5774	1.3849	1.2123	1.0759	0.9660
930	0.8639	0.7707	0.6866	0.6230	0.5775
940	0.5341	0.4930	0.4541	0.4176	0.3835
950	0.3517	0.3318	0.3126	0.2[illegible]3	0.2768
960	0.2601	0.2442	0.2293	0.2151	0.2018
970	0.1893	0.1778	0.1670	0.1591	0.1538
980	0.1486	0.1437	0.1385	0.1343	0.1299
990	0.1258	0.1217	0.1175	0.1143	0.1109
1000	0.1077	0.1053	0.1029	0.1007	0.0985
1010	0.0965	0.0945	0.0926	0.0908	0.0892
1020	0.0876	0.0861	0.0848	0.0834	0.0821
1030	0.0809	0.0798	0.0789	0.0781	0.0775
1040	0.0770	0.0767	0.0765	0.0764	0.0765
1050	0.0766	0.0771	0.0777	0.0783	0.0792
1060	0.0801	0.0811	0.0823	0.0836	0.0850
1070	0.0865	0.0882	0.0900	0.0952	0.1031
1080	0.1101	0.1160	0.1208	0.1248	0.1277
1090	0.1297	0.1306	0.1304	0.1293	0.1272
1100	0.1241	0.1097	0.0959	0.0830	0.0709
1110	0.0596	0.0491	0.0353	0.0304	0.0223
1120	0.0149	0.0084	0.0026	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IR2 RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.393271E-06	0.0022	0.0044	0.0067	0.0090
360	0.0113	0.0137	0.0161	0.0185	0.0210
370	0.0235	0.0261	0.0286	0.0323	0.0369
380	0.0411	0.0449	0.0485	0.0517	0.0546
390	0.0572	0.0594	0.0614	0.0630	0.0643
400	0.0653	0.0628	0.0605	0.0585	0.0566
410	0.0550	0.0536	0.0525	0.0515	0.0509
420	0.0504	0.0502	0.0503	0.0513	0.0530
430	0.0548	0.0567	0.0585	0.0604	0.0623
440	0.0642	0.0662	0.0681	0.0702	0.0722
450	0.0744	0.0664	0.0602	0.0557	0.0530
460	0.0520	0.0528	0.0555	0.0595	0.0662
470	0.0743	0.0843	0.0960	0.1148	0.1394
480	0.1642	0.1890	0.2140	0.2390	0.2642
490	0.2894	0.3148	0.3402	0.3657	0.3913
500	0.4171	0.4778	0.5327	0.5815	0.6244
510	0.6612	0.6920	0.7170	0.7357	0.7483
520	0.7552	0.7558	0.7503	0.7106	0.6432
530	0.5789	0.5180	0.4604	0.4061	0.3552
540	0.3076	0.2635	0.2228	0.1856	0.1519
550	0.1218	0.1130	0.1047	0.0968	0.0894
560	0.0824	0.0758	0.0696	0.0638	0.0584
570	0.0535	0.0489	0.0448	0.0420	0.0403
580	0.0386	0.0371	0.0356	0.0343	0.0330
590	0.0318	0.0307	0.0296	0.0287	0.0278
600	0.0271	0.0267	0.0263	0.0260	0.0257
610	0.0255	0.0253	0.0251	0.0250	0.0249
620	0.0248	0.0248	0.0248	0.0249	0.0251
630	0.0252	0.0254	0.0257	0.0259	0.0262
640	0.0265	0.0267	0.0272	0.0276	0.0281
650	0.0285	0.0292	0.0298	0.0305	0.0311
660	0.0318	0.0324	0.0330	0.0336	0.0342
670	0.0348	0.0353	0.0355	0.0350	0.0332
680	0.0318	0.0309	0.0304	0.0303	0.0307
690	0.0315	0.0328	0.0345	0.0366	0.0391
700	0.0421	0.0459	0.0500	0.0544	0.0592
710	0.0643	0.0698	0.0756	0.0818	0.0883
720	0.0951	0.1023	0.1057	0.1232	0.1412
730	0.1577	0.1725	0.1656	0.1972	0.2072
740	0.2156	0.2223	0.2276	0.2314	0.2336
750	0.2343	0.2236	0.2131	0.2029	0.1931

IP2 RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.1836	0.1744	0.1655	0.1568	0.1485
770	0.1405	0.1327	0.1253	0.1174	0.1094
780	0.1018	0.0948	0.0883	0.0823	0.0767
790	0.0717	0.0671	0.0630	0.0593	0.0561
800	0.0533	0.0521	0.0512	0.0504	0.0499
810	0.0497	0.0497	0.0459	0.0503	0.0510
820	0.0519	0.0531	0.0545	0.0536	0.0509
830	0.0493	0.0488	0.0494	0.0512	0.0539
840	0.0577	0.0626	0.0686	0.0756	0.0838
850	0.0939	0.0287	0.0000	0.0000	0.0000
860	0.0000	0.0000	0.0000	0.0000	0.0209
870	0.0849	0.1630	0.2530	0.2335	0.1344
880	0.0913	0.1043	0.1772	0.3032	0.4849
890	0.7239	1.0215	1.3805	1.7942	2.2666
900	2.7969	3.3916	4.0441	4.7866	5.5705
910	6.3522	7.2237	7.9604	8.4884	8.8440
920	9.1344	9.3529	9.5063	9.5469	9.5406
930	9.5544	9.6096	9.6615	9.7770	9.9126
940	9.9902	9.9982	9.9410	9.8385	9.6687
950	9.3719	8.8785	8.3153	7.6334	6.9004
960	6.1878	5.4768	4.8160	4.2172	3.6654
970	3.1776	2.7464	2.3695	2.0673	1.8160
980	1.6018	1.4389	1.2939	1.1698	1.0634
990	0.9684	0.8824	0.8079	0.7450	0.6918
1000	0.6420	0.6085	0.5762	0.5452	0.5156
1010	0.4872	0.4602	0.4345	0.4103	0.3875
1020	0.3661	0.3462	0.3277	0.3134	0.3026
1030	0.2923	0.2828	0.2740	0.2656	0.2580
1040	0.2510	0.2444	0.2386	0.2333	0.2287
1050	0.2246	0.2220	0.2211	0.2195	0.2189
1060	0.2182	0.2179	0.2178	0.2181	0.2185
1070	0.2194	0.2205	0.2220	0.2305	0.2447
1080	0.2570	0.2671	0.2754	0.2817	0.2859
1090	0.2881	0.2882	0.2864	0.2826	0.2767
1100	0.2689	0.2374	0.2075	0.1799	0.1536
1110	0.1291	0.1063	0.0852	0.0659	0.0482
1120	0.0323	0.0180	0.0056	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IR3 RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.325397E-06	0.0046	0.0093	0.0141	0.0190
360	0.0240	0.0291	0.0343	0.0396	0.0450
370	0.0505	0.0561	0.0617	0.0703	0.0450
380	0.0907	0.0997	0.1079	0.1152	0.1218
390	0.1275	0.1325	0.1367	0.1401	0.1427
400	0.1446	0.1366	0.1294	0.1228	0.1170
410	0.1119	0.1076	0.1040	0.1012	0.0992
420	0.0980	0.0975	0.0975	0.1002	0.1042
430	0.1037	0.1136	0.1150	0.1248	0.1311
440	0.1378	0.1450	0.1527	0.1608	0.1694
450	0.1786	0.1934	0.2079	0.2220	0.2357
460	0.2499	0.2617	0.2740	0.2860	0.2974
470	0.3094	0.3189	0.3250	0.3419	0.3570
480	0.3705	0.3824	0.3925	0.4011	0.4079
490	0.4132	0.4168	0.4188	0.4190	0.4176
500	0.4146	0.3962	0.3785	0.3615	0.3452
510	0.3296	0.3147	0.3005	0.2870	0.2741
520	0.2619	0.2505	0.2357	0.2306	0.2229
530	0.2155	0.2086	0.2020	0.1957	0.1899
540	0.1844	0.1793	0.1747	0.1704	0.1665
550	0.1630	0.1606	0.1565	0.1566	0.1551
560	0.1538	0.1528	0.1520	0.1516	0.1514
570	0.1514	0.1519	0.1524	0.1535	0.1551
580	0.1569	0.1588	0.1610	0.1633	0.1658
590	0.1685	0.1714	0.1744	0.1776	0.1810
600	0.1846	0.1879	0.1915	0.1953	0.1993
610	0.2035	0.2080	0.2127	0.2176	0.2228
620	0.2292	0.2338	0.2356	0.2457	0.2520
630	0.2585	0.2653	0.2723	0.2795	0.2869
640	0.2946	0.3025	0.3106	0.3185	0.3274
650	0.3361	0.3440	0.3522	0.3608	0.3698
660	0.3792	0.3859	0.3950	0.4095	0.4203
670	0.4315	0.4430	0.4545	0.4661	0.4770
680	0.4886	0.5008	0.5137	0.5272	0.5414
690	0.5562	0.5716	0.5876	0.6043	0.6216
700	0.6396	0.6856	0.7273	0.7647	0.7978
710	0.8267	0.8516	0.8722	0.8888	0.9012
720	0.9096	0.9139	0.9142	0.9016	0.8787
730	0.8550	0.8303	0.8046	0.7781	0.7508
740	0.7224	0.6932	0.6633	0.6324	0.6007
750	0.5683	0.5139	0.4626	0.4143	0.3688

[illegible] RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.3263	0.2867	0.2458	0.2159	0.1847
770	0.1564	0.1306	0.1077	0.0940	0.0882
780	0.0827	0.0774	0.0725	0.0679	0.0636
790	0.0595	0.0558	0.0523	0.0491	0.0462
800	0.0435	0.0416	0.0355	0.0384	0.0370
810	0.0358	0.0348	0.0335	0.0331	0.0326
820	0.0321	0.0319	0.0318	0.0317	0.0316
830	0.0318	0.0321	0.0327	0.0335	0.0344
840	0.0356	0.0370	0.0386	0.0404	0.0424
850	0.0447	0.0432	0.0425	0.0429	0.0440
860	0.0461	0.0491	0.0531	0.0579	0.0637
870	0.0704	0.0780	0.0867	0.0863	0.0791
880	0.0763	0.0778	0.0836	0.0936	0.1080
890	0.1266	0.1496	0.1770	0.2088	0.2451
900	0.2864	0.2625	0.2549	0.2638	0.2892
910	0.3313	0.3903	0.4650	0.5579	0.6681
920	0.7943	0.9393	1.1006	1.3552	1.6860
930	2.0102	2.3277	2.6384	2.9412	3.2377
940	3.5270	3.8088	4.0833	4.3487	4.6074
950	4.8582	5.1857	5.4789	5.7379	5.9612
960	6.1497	6.3021	6.4196	6.4816	6.4981
970	6.4980	6.4926	6.4491	6.3821	6.2920
980	6.2009	6.1090	6.0163	5.9191	5.8195
990	5.7225	5.6283	5.5264	5.4560	5.3736
1000	5.2766	5.1592	5.0409	4.9217	4.8019
1010	4.6817	4.5612	4.4410	4.3180	4.1944
1020	4.0731	3.9541	3.8378	3.7252	3.6141
1030	3.5026	3.3907	3.2764	3.1627	3.0452
1040	2.9299	2.8165	2.7052	2.5548	2.4868
1050	2.3826	2.2833	2.1848	2.0969	2.0120
1060	1.9307	1.8529	1.7763	1.7100	1.6461
1070	1.5833	1.5215	1.4608	1.4034	1.3481
1080	1.2916	1.2342	1.1759	1.1153	1.0532
1090	0.9914	0.9298	0.8665	0.8077	0.7470
1100	0.6857	0.6232	0.5609	0.4949	0.4280
1110	0.3645	0.3043	0.2478	0.1946	0.1422
1120	0.0948	0.0538	0.0165	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0008				

SURVEY RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.432402E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0028	0.0121
370	0.0234	0.0368	0.0521	0.0825	0.1251
380	0.1650	0.2025	0.2376	0.2702	0.3004
390	0.3283	0.3538	0.3770	0.3978	0.4164
400	0.4328	0.4439	0.4546	0.4647	0.4743
410	0.4834	0.4893	0.4954	0.5018	0.5085
420	0.5155	0.5227	0.5302	0.5394	0.5499
430	0.5602	0.5703	0.5802	0.5900	0.5996
440	0.6090	0.6182	0.6273	0.6361	0.6448
450	0.6533	0.6611	0.6688	0.6764	0.6839
460	0.6913	0.6986	0.7058	0.7128	0.7197
470	0.7265	0.7332	0.7357	0.7458	0.7515
480	0.7572	0.7629	0.7686	0.7743	0.7799
490	0.7855	0.7919	0.7979	0.8035	0.8086
500	0.8134	0.8161	0.8191	0.8225	0.8262
510	0.8302	0.8356	0.8410	0.8464	0.8517
520	0.8571	0.8624	0.8677	0.8731	0.8785
530	0.8839	0.8893	0.8946	0.8999	0.9051
540	0.9103	0.9155	0.9206	0.9256	0.9306
550	0.9356	0.9391	0.9428	0.9467	0.9507
560	0.9549	0.9592	0.9637	0.9684	0.9733
570	0.9783	0.9834	0.9888	0.9957	1.0038
580	1.0116	1.0191	1.0264	1.0334	1.0402
590	1.0467	1.0533	1.0595	1.0652	1.0704
600	1.0751	1.0762	1.0773	1.0785	1.0798
610	1.0812	1.0826	1.0841	1.0857	1.0874
620	1.0891	1.0909	1.0928	1.0958	1.0995
630	1.1031	1.1063	1.1053	1.1121	1.1146
640	1.1169	1.1190	1.1207	1.1223	1.1235
650	1.1246	1.1239	1.1232	1.1226	1.1219
660	1.1213	1.1206	1.1200	1.1194	1.1189
670	1.1182	1.1176	1.1170	1.1160	1.1148
680	1.1137	1.1127	1.1118	1.1111	1.1106
690	1.1101	1.1098	1.1056	1.1096	1.1096
700	1.1098	1.1114	1.1129	1.1143	1.1156
710	1.1167	1.1178	1.1188	1.1197	1.1205
720	1.1212	1.1218	1.1224	1.1225	1.1223
730	1.1221	1.1220	1.1218	1.1216	1.1214
740	1.1212	1.1210	1.1209	1.1207	1.1205
750	1.1203	1.1201	1.1200	1.1197	1.1195

SURVEY RESPONSIVITY, CAMERA FC3A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	1.1192	1.1189	1.1186	[illegible]	1.1178
770	1.1174	1.1163	1.1164	1.1164	1.1167
780	1.1169	1.1170	1.1171	1.1171	1.1169
790	1.1168	1.1165	1.1161	1.1157	[illegible]
800	1.1147	1.1132	1.1117	1.1104	1.1092
810	1.1081	1.1071	1.1061	1.1053	1.1046
820	1.1040	1.1035	1.1031	1.1033	1.1039
830	1.1043	1.1045	1.1046	1.1045	1.1042
840	1.1038	1.1032	1.1025	1.1012	1.0999
850	1.0993	1.1027	1.1061	1.1095	1.1127
860	1.1160	1.1192	1.1224	1.1255	1.1285
870	1.1315	1.1345	1.1374	1.1412	1.1457
880	1.1498	1.1535	1.1565	1.1599	1.1625
890	1.1647	1.1665	1.1660	1.1690	1.1697
900	1.1700	1.1695	1.1686	1.1674	1.1659
910	1.1640	1.1619	1.1594	1.1565	1.1534
920	1.1498	1.1460	1.1418	1.1373	1.1329
930	1.1284	1.1293	1.1285	1.1274	1.1247
940	1.1210	1.1161	1.1099	1.1028	1.0944
950	1.0848	1.0731	1.0611	1.0478	1.0336
960	1.0193	1.0052	0.9910	0.9769	0.9628
970	0.9488	0.9348	0.9209	0.9080	0.8959
980	0.8836	0.8710	0.8581	0.8450	0.8315
990	0.8178	0.8037	0.7894	0.7748	0.7598
1000	0.7446	0.7272	0.7057	0.6923	0.6748
1010	0.6574	0.6400	0.6226	0.6053	0.5881
1020	0.5709	0.5539	0.5365	0.5192	0.5010
1030	0.4832	0.4660	0.4452	0.4325	0.4170
1040	0.4016	0.3865	0.3718	0.3576	0.3438
1050	0.3303	0.3180	0.3058	0.2940	0.2823
1060	0.2708	0.2595	0.2485	0.2377	0.2271
1070	0.2167	0.2065	0.1966	0.1874	0.1787
1080	0.1701	0.1617	0.1532	0.1449	0.1367
1090	0.1285	0.1204	0.1124	0.1045	0.0967
1100	0.0889	0.0785	0.0687	0.0595	0.0508
1110	0.0427	0.0352	0.0282	0.0218	0.0158
1120	0.0106	0.0059	0.0018	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

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COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC2A)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.6835	0.6835	0.6835	0.6835	0.6835
360	0.6835	0.6835	0.6835	0.6835	0.6835
370	0.6835	0.6835	0.6835	0.6831	0.6823
380	0.6818	0.6813	0.6810	0.6809	0.6808
390	0.6809	0.6812	0.6815	0.6820	0.6827
400	0.6835	0.6851	0.6868	0.6884	0.6901
410	0.6918	0.6935	0.6952	0.6959	0.6986
420	0.7003	0.7020	0.7028	0.7057	0.7078
430	0.7099	0.7119	0.7138	0.7157	0.7175
440	0.7193	0.7210	0.7226	0.7242	0.7257
450	0.7271	0.7280	0.7288	0.7297	0.7306
460	0.7316	0.7326	0.7336	0.7347	0.7358
470	0.7370	0.7381	0.7393	0.7414	0.7442
480	0.7468	0.7491	0.7511	0.7529	0.7545
490	0.7558	0.7568	0.7576	0.7591	0.7584
500	0.7585	0.7553	0.7525	0.7498	0.7475
510	0.7454	0.7435	0.7419	0.7405	0.7394
520	0.7385	0.7378	0.7378	0.7386	0.7409
530	0.7430	0.7450	0.7468	0.7484	0.7499
540	0.7512	0.7523	0.7533	0.7541	0.7547
550	0.7552	0.7543	0.7534	0.7525	0.7517
560	0.7510	0.7503	0.7496	0.7490	0.7485
570	0.7480	0.7475	0.7471	0.7472	0.7477
580	0.7481	0.7494	0.7486	0.7486	0.7486
590	0.7485	0.7483	0.7480	0.7475	0.7470
600	0.7464	0.7450	0.7437	0.7424	0.7410
610	0.7397	0.7384	0.7371	0.7358	0.7345
620	0.7333	0.7320	0.7308	0.7295	0.7282
630	0.7270	0.7257	0.7245	0.7233	0.7221
640	0.7209	0.7198	0.7186	0.7175	0.7163
650	0.7152	0.7145	0.7137	0.7129	0.7120
660	0.7111	0.7101	0.7091	0.7080	0.7069
670	0.7057	0.7045	0.7033	0.7020	0.7006
680	0.6992	0.6977	0.6962	0.6947	0.6931
690	0.6915	0.6899	0.6883	0.6866	0.6849
700	0.6831	0.6807	0.6784	0.6762	0.6740
710	0.6719	0.6699	0.6680	0.6662	0.6644
720	0.6627	0.6610	0.6595	0.6585	0.6580
730	0.6575	0.6563	0.6560	0.6550	0.6540
740	0.6529	0.6517	0.6504	0.6489	0.6474
750	0.6458	0.6433	0.6408	0.6383	0.6359

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (EC2A)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.6335	0.6312	0.6289	0.6267	0.6245
770	0.6223	0.6202	0.6161	0.6161	0.6142
780	0.6122	0.6103	0.6085	0.6066	0.6048
790	0.6030	0.6012	0.5955	0.5978	0.5961
800	0.5945	0.5924	0.5905	0.5887	0.5869
810	0.5853	0.5838	0.5823	0.5810	0.5798
820	0.5787	0.5776	0.5767	0.5761	0.5757
830	0.5754	0.5750	0.5748	0.5745	0.5743
840	0.5742	0.5740	0.5735	0.5735	0.5739
850	0.5739	0.5729	0.5721	0.5716	0.5712
860	0.5711	0.5712	0.5715	0.5720	0.5727
870	0.5737	0.5749	0.5763	0.5792	0.5834
880	0.5874	0.5911	0.5947	0.5980	0.6011
890	0.6040	0.6067	0.6092	0.6114	0.6135
900	0.6153	0.6151	0.6150	0.6150	0.6150
910	0.6151	0.6152	0.6155	0.6157	0.6161
920	0.6165	0.6169	0.6175	0.6182	0.6191
930	0.6200	0.6210	0.6219	0.6229	0.6240
940	0.6251	0.6262	0.6273	0.6284	0.6296
950	0.6309	0.6330	0.6351	0.6370	0.6388
960	0.6405	0.6421	0.6435	0.6448	0.6460
970	0.6471	0.6480	0.6488	0.6487	0.6480
980	0.6474	0.6469	0.6465	0.6462	0.6460
990	0.6460	0.6460	0.6462	0.6464	0.6468
1000	0.6473	0.6491	0.6508	0.6525	0.6540
1010	0.6554	0.6568	0.6580	0.6591	0.6601
1020	0.6610	0.6618	0.6625	0.6626	0.6624
1030	0.6622	0.6620	0.6618	0.6617	0.6616
1040	0.6615	0.6614	0.6614	0.6615	0.6615
1050	0.6616	0.6606	0.6557	0.6592	0.6588
1060	0.6597	0.6598	0.6552	0.6598	0.6606
1070	0.6616	0.6629	0.6645	0.6677	0.6723
1080	0.6767	0.6808	0.6846	0.6882	0.6915
1090	0.6946	0.6974	0.7000	0.7023	0.7043
1100	0.7061	0.7061	0.7061	0.7061	0.7061
1110	0.7061	0.7061	0.7061	0.7061	0.7061
1120	0.7061	0.7061	0.7061	0.7061	0.7061
1130	0.7061	0.7061	0.7061	0.7061	0.7061
1140	0.7061	0.7061	0.7061	0.7061	0.7061
1150	0.7061				

RPI RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	-.327352E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0028	0.0095	0.0166
370	0.0250	0.0347	0.0487	0.0648	0.0901
380	0.1145	0.1380	0.1604	0.1820	0.2027
390	0.2225	0.2413	0.2593	0.2765	0.2928
400	0.3092	0.3172	0.3263	0.3356	0.3450
410	0.3545	0.3642	0.3740	0.3839	0.3940
420	0.4042	0.4145	0.4250	0.4375	0.4514
430	0.4649	0.4780	0.4906	0.5028	0.5145
440	0.5257	0.5365	0.5468	0.5566	0.5659
450	0.5747	0.5800	0.5854	0.5907	0.5960
460	0.6014	0.6067	0.6120	0.6173	0.6226
470	0.6280	0.6333	0.6386	0.6448	0.6516
480	0.6582	0.6645	0.6705	0.6763	0.6817
490	0.6860	0.6917	0.6962	0.7004	0.7043
500	0.7078	0.7070	0.7066	0.7065	0.7067
510	0.7073	0.7083	0.7097	0.7114	0.7135
520	0.7159	0.7188	0.7220	0.7270	0.7335
530	0.7400	0.7463	0.7526	0.7599	0.7650
540	0.7711	0.7771	0.7830	0.7888	0.7945
550	0.8001	0.8048	0.8056	0.8143	0.8191
560	0.8239	0.8267	0.8335	0.8384	0.8432
570	0.8431	0.8530	0.8575	0.8641	0.8712
580	0.8779	0.8842	0.8902	0.8958	0.9010
590	0.9058	0.9103	0.9143	0.9180	0.9213
600	0.9242	0.9241	0.9241	0.9242	0.9243
610	0.9244	0.9246	0.9249	0.9252	0.9256
620	0.9261	0.9265	0.9271	0.9281	0.9296
630	0.9309	0.9321	0.9333	0.9343	0.9353
640	0.9361	0.9369	0.9375	0.9381	0.9386
650	0.9399	0.9370	0.9350	0.9389	0.9388
660	0.9387	0.9335	0.9383	0.9380	0.9376
670	0.9372	0.9368	0.9363	0.9354	0.9342
680	0.9331	0.9320	0.9310	0.9300	0.9292
690	0.9283	0.9276	0.9269	0.9262	0.9257
700	0.9251	0.9248	0.9245	0.9242	0.9240
710	0.9239	0.9236	0.9234	0.9233	0.9231
720	0.9230	0.9230	0.9225	0.9232	0.9238
730	0.9244	0.9248	0.9251	0.9254	0.9256
740	0.9257	0.9257	0.9257	0.9256	0.9253
750	0.9250	0.9241	0.9232	0.9223	0.9214

BPI RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	C.9205	0.9196	0.9187	0.9178	0.9169
770	C.9161	0.9152	0.9143	C.9138	0.9136
780	C.9133	0.9129	0.9123	C.9116	0.9108
790	C.9099	0.9089	0.9078	C.9065	0.9052
800	C.9037	C.9008	0.8980	C.8954	C.8929
810	0.8905	0.8983	C.8862	C.8842	0.8873
820	C.8806	0.8790	0.8775	0.8765	0.8757
830	C.8750	0.8743	0.8736	C.8731	0.8725
840	C.8720	0.8716	C.8712	C.8709	C.8706
850	C.8703	0.8687	0.8673	0.8663	0.8655
860	C.8651	0.8649	0.8650	0.8654	0.8661
870	C.8671	C.8684	0.8700	0.8749	0.8825
880	0.8894	0.8956	0.9010	C.9058	0.9098
890	0.9131	0.9156	0.9173	C.9183	0.9185
900	C.9181	0.9122	0.9063	C.9005	0.8946
910	C.8688	0.8831	0.8773	C.8716	0.3658
920	0.8601	0.8545	0.8488	C.8443	0.8407
930	C.8367	0.8324	0.8276	0.8225	0.8170
940	0.8111	0.8049	0.7982	0.7912	0.7837
950	0.7758	0.7657	0.7554	C.7451	0.7346
960	C.7241	0.7134	0.7027	C.6919	0.6811
970	C.6702	0.6592	0.6483	0.6373	0.6265
980	C.6156	0.6047	0.5938	0.5829	0.5719
990	0.5609	0.5498	0.5387	C.5276	C.5163
1000	C.5050	0.4927	0.4804	0.4682	0.4560
1010	0.4438	0.4318	0.4198	0.4078	0.3960
1020	0.3843	0.3726	0.3611	C.3493	0.3373
1030	C.3256	0.3142	0.3030	0.2921	0.2815
1040	0.2712	0.2611	0.2512	0.2416	0.2323
1050	0.2232	0.2146	0.2062	C.1981	C.1902
1060	0.1825	0.1750	0.1677	0.1606	0.1538
1070	0.1471	0.1405	0.1342	0.1286	0.1236
1080	0.1185	0.1133	0.1061	C.1028	0.0975
1090	C.0921	0.0867	0.0814	C.0759	C.0705
1100	0.0651	0.0575	0.0504	0.0435	0.0372
1110	C.0312	0.0258	0.0206	C.0160	0.0117
1120	C.0078	0.0044	0.0013	0.0000	0.0000
1130	C.0000	0.0000	0.0000	0.0000	0.0000
1140	C.0000	0.0000	0.0000	C.0000	C.0000
1150	C.0000				

B32 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.286594E-04	0.0000	0.0100	0.0000	0.0000
360	0.0000	0.0009	0.0054	0.0111	0.0181
370	0.0264	0.0359	0.0466	0.0647	0.0885
380	0.1115	0.1337	0.1551	0.1758	0.1957
390	0.2149	0.2333	0.2510	0.2680	0.2843
400	0.2999	0.3109	0.3219	0.3329	0.3439
410	0.3550	0.3660	0.3770	0.3881	0.3991
420	0.4102	0.4213	0.4324	0.4445	0.4576
430	0.4702	0.4826	0.4946	0.5062	0.5175
440	0.5284	0.5389	0.5450	0.5588	0.5682
450	0.5772	0.5838	0.5904	0.5969	0.6033
460	0.6097	0.6159	0.6221	0.6283	0.6343
470	0.6403	0.6462	0.6520	0.6586	0.6657
480	0.6724	0.6789	0.6850	0.6908	0.6962
490	0.7013	0.7061	0.7105	0.7145	0.7182
500	0.7215	0.7197	0.7184	0.7175	0.7170
510	0.7170	0.7174	0.7182	0.7195	0.7212
520	0.7233	0.7259	0.7289	0.7340	0.7409
530	0.7477	0.7544	0.7610	0.7675	0.7739
540	0.7802	0.7864	0.7924	0.7983	0.8041
550	0.8098	0.8143	0.8187	0.8233	0.8278
560	0.8324	0.8371	0.8418	0.8465	0.8513
570	0.8562	0.8611	0.8660	0.8722	0.8794
580	0.8863	0.8928	0.8985	0.9047	0.9102
590	0.9153	0.9200	0.9244	0.9284	0.9321
600	0.9354	0.9363	0.9373	0.9382	0.9391
610	0.9399	0.9400	0.9416	0.9424	0.9432
620	0.9439	0.9447	0.9454	0.9462	0.9471
630	0.9480	0.9488	0.9495	0.9501	0.9507
640	0.9512	0.9517	0.9521	0.9524	0.9527
650	0.9529	0.9530	0.9530	0.9530	0.9529
660	0.9528	0.9527	0.9524	0.9522	0.9519
670	0.9515	0.951[illegible]	0.9506	0.9498	0.9496
680	0.9475	0.9465	0.9455	0.9446	0.9437
690	0.9430	0.9422	0.9415	0.9409	0.9403
700	0.9398	0.9396	0.9394	0.9392	0.9390
710	0.9388	0.9386	0.9384	0.9387	0.9381
720	0.9379	0.9373	0.9376	0.9376	0.9377
730	0.9378	0.9379	0.9379	0.9379	0.9379
740	0.9[illegible]78	0.9377	0.9375	0.9373	0.9371
750	0.9369	0.9364	0.9360	0.9356	0.9351

802 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9345	0.9340	0.9334	0.9328	0.9322
770	0.9316	0.9309	0.9302	0.9297	0.9293
780	0.9288	0.9282	0.9276	0.9268	0.9260
790	0.9252	0.9242	0.9232	0.9221	0.9209
800	0.9196	0.9174	0.9153	0.9133	0.9114
810	0.9095	0.9073	0.9061	0.9045	0.9030
820	0.9016	0.9002	0.8990	0.8980	0.8973
830	0.8966	0.8959	0.8952	0.8946	0.8940
840	0.8934	0.8929	0.8922	0.8917	0.8912
850	0.8907	0.8886	0.8867	0.8852	0.8839
860	0.8830	0.8824	0.8821	0.8822	0.8825
870	0.8832	0.8842	0.8854	0.8901	0.8976
880	0.9043	0.9103	0.9156	0.9201	0.9240
890	0.9271	0.9295	0.9311	0.9319	0.9319
900	0.9314	0.9254	0.9194	0.9135	0.9075
910	0.9016	0.8958	0.8855	0.8841	0.8783
920	0.8725	0.8667	0.8605	0.8563	0.8526
930	0.8495	0.8440	0.8352	0.8340	0.8283
940	0.8224	0.8160	0.8051	0.8020	0.7945
950	0.7965	0.7762	0.7658	0.7552	0.7446
960	0.7339	0.7231	0.7122	0.7013	0.6903
970	0.6792	0.6681	0.6565	0.6456	0.6344
980	0.6231	0.6119	0.6007	0.5895	0.5783
990	0.5671	0.5559	0.5147	0.5335	0.5223
1000	0.5110	0.4991	0.4872	0.4754	0.4636
1010	0.4518	0.4401	0.4284	0.4167	0.4051
1020	0.3936	0.3822	0.3709	0.3592	0.3473
1030	0.3357	0.3244	0.3133	0.3024	0.2918
1040	0.2815	0.2713	0.2615	0.2519	0.2425
1050	0.2333	0.2245	0.2160	0.2077	0.1996
1060	0.1917	0.1840	0.1766	0.1693	0.1622
1070	0.1553	0.1486	0.1420	0.1362	0.1310
1080	0.1257	0.1203	0.1148	0.1093	0.1037
1090	0.0980	0.0924	0.0867	0.0810	0.0753
1100	0.0695	0.0614	0.0538	0.0466	0.0398
1110	0.0334	0.0275	0.0221	0.0170	0.0125
1120	0.0084	0.0047	0.0015	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	.246713E-04				

B43 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.288636E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0030	0.0090
370	0.0162	0.0246	0.0343	0.0512	0.0737
380	0.0954	0.1164	0.1367	0.1562	0.1750
390	0.1931	0.2105	0.2272	0.2432	0.2586
400	0.2733	0.2832	0.2932	0.3032	0.3133
410	0.3235	0.3337	0.3441	0.3545	0.3650
420	0.3755	0.3861	0.3969	0.4090	0.4223
430	0.4352	0.4478	0.4600	0.4718	0.4832
440	0.4942	0.5049	0.5151	0.5250	0.5344
450	0.5434	0.5496	0.5558	0.5619	0.5681
460	0.5742	0.5803	0.5863	0.5924	0.5984
470	0.6044	0.6104	0.6163	0.6228	0.6297
480	0.6364	0.6429	0.6493	0.6554	0.6613
490	0.6670	0.6725	0.6778	0.6829	0.6877
500	0.6923	0.6939	0.6957	0.6977	0.7000
510	0.7024	0.7051	0.7079	0.7110	0.7144
520	0.7179	0.7217	0.7258	0.7311	0.7376
530	0.7440	0.7503	0.7565	0.7626	0.7686
540	0.7745	0.7804	0.7861	0.7917	0.7972
550	0.8026	0.8068	0.8111	0.8155	0.8198
560	0.8242	0.8287	0.8332	0.8378	0.8424
570	0.8470	0.8517	0.8564	0.8624	0.8694
580	0.8760	0.8823	0.8882	0.8938	0.8990
590	0.9039	0.9084	0.9125	0.9163	0.9197
600	0.9227	0.9227	0.9229	0.9231	0.9234
610	0.9238	0.9243	0.9248	0.9255	0.9263
620	0.9271	0.9280	0.9290	0.9309	0.9334
630	0.9357	0.9379	0.9359	0.9417	0.9434
640	0.9449	0.9462	0.9474	0.9484	0.9493
650	0.9500	0.9498	0.9495	0.9493	0.9490
660	0.9487	0.9484	0.9480	0.9476	0.9472
670	0.9468	0.9464	0.9459	0.9452	0.9444
680	0.9436	0.9429	0.9421	0.9414	0.9408
690	0.9401	0.9395	0.9389	0.9383	0.9378
700	0.9373	0.9365	0.9359	0.9353	0.9347
710	0.9343	0.9338	0.9335	0.9332	0.9330
720	0.9328	0.9327	0.9327	0.9332	0.9342
730	0.9350	0.9358	0.9365	0.9370	0.9375
740	0.9379	0.9388	0.9363	0.9384	0.9383
750	0.9382	0.9372	0.9362	0.9352	0.9343

803 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9334	0.9325	0.9317	0.9308	0.9300
770	0.9293	0.9285	0.9278	0.9276	0.9279
780	0.9280	0.9279	0.9277	0.9274	0.9269
790	0.9263	0.9255	0.9246	0.9236	0.9224
800	0.9211	0.9182	0.9154	0.9127	0.9102
810	0.9078	0.9056	0.9034	0.9014	0.8996
820	0.8978	0.8962	0.8947	0.8937	0.8931
830	0.8924	0.8918	0.8912	0.8906	0.8901
840	0.8895	0.8890	0.8885	0.8881	0.8876
850	0.8872	0.8851	0.8833	0.8818	0.8807
860	0.8798	0.8792	0.8790	0.8790	0.8794
870	0.8900	0.8810	0.8823	0.8869	0.8940
880	0.9005	0.9064	0.9115	0.9160	0.9198
890	0.9228	0.9252	0.9268	0.9277	0.9279
900	0.9274	0.9221	0.9168	0.9114	0.9061
910	0.9007	0.8953	0.8858	0.8843	0.8788
920	0.8732	0.8676	0.8620	0.8574	0.8534
930	0.8491	0.8445	0.8354	0.8340	0.8281
940	0.8219	0.8153	0.8083	0.8009	0.7931
950	0.7848	0.7742	0.7634	0.7526	0.7416
960	0.7306	0.7196	0.7085	0.6973	0.6861
970	0.6748	0.6636	0.6523	0.6411	0.6301
980	0.6191	0.6081	0.5970	0.5859	0.5748
990	0.5636	0.5524	0.5411	0.5297	0.5183
1000	0.5068	0.4942	0.4816	0.4690	0.4566
1010	0.4441	0.4318	0.4156	0.4075	0.3955
1020	0.3835	0.3717	0.3601	0.3482	0.3362
1030	0.3246	0.3132	0.3020	0.2911	0.2805
1040	0.2702	0.2601	0.2502	0.2406	0.2313
1050	0.2222	0.2136	0.2052	0.1970	0.1891
1060	0.1813	0.1738	0.1665	0.1594	0.1525
1070	0.1458	0.1392	0.1328	0.1271	0.1219
1080	0.1166	0.1113	0.1059	0.1005	0.0951
1090	0.0897	0.0843	0.0789	0.0735	0.0681
1100	0.0627	0.0554	0.0485	0.0420	0.0359
1110	0.0301	0.0248	0.0199	0.0154	0.0113
1120	0.0075	0.0043	0.0014	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BB4 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.295126E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0100	0.0035	0.0095
370	0.0168	0.0254	0.0352	0.0520	0.0746
380	0.0964	0.1174	0.1378	0.1574	0.1764
390	0.1946	0.2123	0.2292	0.2455	0.2612
400	0.2762	0.2864	0.2568	0.3072	0.3178
410	0.3285	0.3393	0.3502	0.3612	0.3724
420	0.3836	0.3950	0.4065	0.4199	0.4347
430	0.4491	0.4630	0.4765	0.4896	0.5022
440	0.5143	0.5259	0.5371	0.5478	0.5579
450	0.5676	0.5739	0.5803	0.5865	0.5928
460	0.5990	0.6052	0.6114	0.6175	0.6236
470	0.6297	0.6358	0.6418	0.6485	0.6558
480	0.6628	0.6696	0.6761	0.6824	0.6884
490	0.6941	0.6995	0.7046	0.7094	0.7139
500	0.7181	0.7193	0.7168	0.7196	0.7207
510	0.7222	0.7239	0.7260	0.7284	0.7312
520	0.7342	0.7376	0.7414	0.7469	0.7538
530	0.7607	0.7674	0.7741	0.7806	0.7871
540	0.7934	0.7996	0.8057	0.8117	0.8175
550	0.8233	0.8270	0.8323	0.8369	0.8415
560	0.8462	0.8509	0.8557	0.8605	0.8653
570	0.8703	0.8752	0.8802	0.8865	0.8938
580	0.9007	0.9073	0.9135	0.9194	0.9249
590	0.9300	0.9348	0.9352	0.9433	0.9470
600	0.9503	0.9512	0.9521	0.9529	0.9538
610	0.9547	0.9555	0.9563	0.9571	0.9579
620	0.9587	0.9595	0.9602	0.9611	0.9621
630	0.9630	0.9639	0.9647	0.9654	0.9661
640	0.9667	0.9672	0.9677	0.9681	0.9685
650	0.9688	0.9692	0.9695	0.9698	0.9699
660	0.9700	0.9700	0.9695	0.9697	0.9695
670	0.9691	0.9687	0.9682	0.9672	0.9658
680	0.9644	0.9631	0.9619	0.9608	0.9597
690	0.9586	0.9576	0.9567	0.9559	0.9551
700	0.9543	0.9535	0.9528	0.9521	0.9515
710	0.9510	0.9505	0.9502	0.9499	0.9497
720	0.9495	0.9495	0.9495	0.9502	0.9514
730	0.9525	0.9535	0.9543	0.9551	0.9557
740	0.9552	0.9567	0.9570	0.9571	0.9572
750	0.9572	0.9562	0.9552	0.9543	0.9534

(2)

B24 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9525	0.9516	0.9508	0.9500	0.9492
770	0.9484	0.9477	0.9470	0.9468	0.9469
780	0.9470	0.9468	0.9466	0.9463	0.9458
790	0.9452	0.9445	0.9437	0.9427	0.9417
800	0.9406	0.9380	0.9355	0.9332	0.9310
810	0.9289	0.9269	0.9251	0.9234	0.9219
820	0.9204	0.9191	0.9179	0.9173	0.9170
830	0.9168	0.9165	0.9163	0.9160	0.9157
840	0.9155	0.9152	0.9149	0.9146	0.9144
850	0.9140	0.9120	0.9103	0.9088	0.9076
860	0.9068	0.9062	0.9059	0.9059	0.9062
870	0.9068	0.9077	0.9089	0.9133	0.9202
880	0.9265	0.9321	0.9370	0.9413	0.9448
890	0.9476	0.9498	0.9512	0.9515	0.9519
900	0.9511	0.9455	0.9399	0.9343	0.9287
910	0.9231	0.9175	0.9118	0.9062	0.9005
920	0.8949	0.8892	0.8835	0.8790	0.8754
930	0.8713	0.8669	0.8620	0.8567	0.8510
940	0.8449	0.8383	0.8313	0.8239	0.8161
950	0.8079	0.7969	0.7859	0.7748	0.7636
960	0.7523	0.7410	0.7296	0.7182	0.7067
970	0.6952	0.6837	0.6721	0.6607	0.6494
980	0.6332	0.6269	0.6156	0.6042	0.5928
990	0.5814	0.5699	0.5584	0.5468	0.5351
1000	0.5234	0.5107	0.4981	0.4855	0.4729
1010	0.4603	0.4478	0.4353	0.4229	0.4105
1020	0.3982	0.3859	0.3736	0.3610	0.3480
1030	0.3352	0.3229	0.3107	0.2990	0.2875
1040	0.2764	0.2656	0.2550	0.2449	0.2350
1050	0.2254	0.2167	0.2081	0.1998	0.1918
1060	0.1839	0.1763	0.1689	0.1617	0.1547
1070	0.1479	0.1412	0.1348	0.1290	0.1238
1080	0.1186	0.1133	0.1075	0.1025	0.0971
1090	0.0916	0.0862	0.0807	0.0752	0.0698
1100	0.0643	0.0568	0.0457	0.0430	0.0367
1110	0.0308	0.0254	0.0204	0.0157	0.0114
1120	0.0077	0.0043	0.0013	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BLUE RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0000	0.0000
370	0.0000	0.0000	0.0722	0.2736	0.5381
380	0.7760	0.9878	1.1732	1.3328	1.4665
390	1.5756	1.5503	1.5527	1.5632	1.6419
400	1.7284	1.8673	2.0239	2.1982	2.3902
410	2.5986	2.9990	3.3204	3.5958	3.7936
420	3.9254	3.9094	3.5264	3.9620	4.0413
430	4.1788	4.5959	4.9703	5.3010	5.5890
440	5.8314	5.9599	6.0778	6.1852	6.2819
450	6.3681	6.4021	6.4437	6.4933	6.5506
460	6.6159	6.7012	6.7364	6.8774	6.9683
470	7.0610	7.1571	7.2532	7.3840	7.5052
480	7.5798	7.4158	7.2754	7.1693	7.0865
490	7.0251	7.4675	7.7034	7.7295	7.5505
500	7.1676	5.8725	4.7224	3.7122	2.8446
510	2.1151	1.6506	1.2545	0.9246	0.6604
520	0.4607	0.3673	0.2835	0.2345	0.2134
530	0.1931	0.1739	0.1556	0.1383	0.1222
540	0.1070	0.0930	0.0800	0.0681	0.0573
550	0.0477	0.0446	0.0417	0.0390	0.0365
560	0.0342	0.0322	0.0303	0.0287	0.0272
570	0.0260	0.0249	0.0241	0.0233	0.0226
580	0.0222	0.0220	0.0221	0.0224	0.0230
590	0.0238	0.0249	0.0263	0.0279	0.0298
600	0.0319	0.0240	0.0160	0.0143	0.0125
610	0.0127	0.0151	0.0154	0.0257	0.0341
620	0.0444	0.0567	0.0711	0.0876	0.1064
630	0.1271	0.1495	0.1737	0.1998	0.2276
640	0.2573	0.2887	0.3219	0.3569	0.3936
650	0.4325	0.5397	0.6368	0.7241	0.9013
660	0.3685	0.9259	0.5734	1.0109	1.0387
670	1.0566	1.0646	1.0631	1.0093	0.9144
680	0.8243	0.7394	0.6550	0.5834	0.5129
690	0.4469	0.3856	0.3253	0.2776	0.2304
700	0.1881	0.1702	0.1533	0.1376	0.1228
710	0.1091	0.0964	0.0847	0.0740	0.0642
720	0.0554	0.0475	0.0407	0.0376	0.0378
730	0.0379	0.0379	0.0378	0.0376	0.0373
740	0.0369	0.0364	0.0358	0.0351	0.0343
750	0.0334	0.0284	0.0241	0.0203	0.0172

BLUE RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0146	0.0127	0.0114	0.0107	0.0105
770	0.0109	0.0120	0.0135	0.0202	0.0310
780	0.0408	0.0494	0.0572	0.0639	0.0696
790	0.0742	0.0779	0.0807	0.0824	0.0833
800	0.0832	0.0737	0.0645	0.0566	0.0488
810	0.0416	0.0349	0.0288	0.0231	0.0181
820	0.0135	0.0094	0.0059	0.0042	0.0040
830	0.0039	0.0038	0.0037	0.0037	0.0037
840	0.0037	0.0037	0.0038	0.0038	0.0039
850	0.0041	0.0040	0.0039	0.0040	0.0041
860	0.0042	0.0045	0.0048	0.0051	0.0056
870	0.0061	0.0067	0.0073	0.0087	0.0107
880	0.0125	0.0142	0.0158	0.0173	0.0186
890	0.0197	0.0208	0.0216	0.0223	0.0229
900	0.0233	0.0218	0.0204	0.0191	0.0180
910	0.0171	0.0163	0.0156	0.0151	0.0147
920	0.0145	0.0144	0.0144	0.0139	0.0130
930	0.0124	0.0123	0.0126	0.0132	0.0141
940	0.0155	0.0173	0.0154	0.0219	0.0248
950	0.0281	0.0373	0.0461	0.0542	0.0618
960	0.0639	0.0755	0.0814	0.0868	0.0916
970	0.0959	0.0995	0.1026	0.1026	0.1002
980	0.0980	0.0960	0.0942	0.0926	0.0913
990	0.0991	0.0891	0.0864	0.0979	0.0875
1000	0.0874	0.0825	0.0788	0.0760	0.0743
1010	0.0737	0.0742	0.0757	0.0783	0.0820
1020	0.0868	0.0926	0.0957	0.1011	0.0985
1030	0.0993	0.1037	0.1110	0.1217	0.1356
1040	0.1528	0.1734	0.1975	0.2246	0.2550
1050	0.2881	0.3795	0.4653	0.5437	0.6162
1060	0.6835	0.7436	0.7975	0.8473	0.8396
1070	0.9263	0.9580	0.9827	0.9935	0.9914
1080	0.9860	0.9771	0.9652	0.9500	0.9310
1090	0.9092	0.8839	0.6549	0.8230	0.7876
1100	0.7496	0.6617	0.5793	0.5018	0.4279
1110	0.3599	0.2968	0.2372	0.1836	0.1349
1120	0.0909	0.0508	0.0164	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.000[illegible]
1150	0.0003				

GREEN RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0026	0.0051	0.0075	0.0099
360	0.0123	0.0146	0.0169	0.0191	0.0213
370	0.0234	0.0255	0.0275	0.0298	0.0323
380	0.0347	0.0369	0.0390	0.0408	0.0425
390	0.0441	0.0455	0.0467	0.0477	0.0486
400	0.0494	0.0484	0.0476	0.0468	0.0462
410	0.0456	0.0452	0.0448	0.0446	0.0444
420	0.0443	0.0444	0.0445	0.0441	0.0432
430	0.0427	0.0425	0.0427	0.0432	0.0440
440	0.0451	0.0466	0.0484	0.0505	0.0530
450	0.0559	0.0558	0.0567	0.0584	0.0611
460	0.0646	0.0691	0.0745	0.0808	0.0880
470	0.0962	0.1053	0.1153	0.1203	0.1291
480	0.1540	0.0861	0.0851	0.1515	0.2945
490	0.4838	0.9548	1.3926	1.7964	2.1659
500	2.5010	2.7355	2.9622	3.1811	3.3926
510	3.5973	3.7417	3.9062	4.0912	4.2966
520	4.5217	4.7960	5.0540	5.2804	5.5089
530	5.7712	6.2752	6.7159	7.0887	7.3981
540	7.6408	7.6923	7.7384	7.7778	7.8107
550	7.8427	8.0407	8.1368	8.1353	8.0352
560	7.9341	7.6772	7.3459	6.8552	6.1946
570	5.3634	4.0482	2.9868	2.2577	1.7484
580	1.3414	1.1504	0.9863	0.8516	0.7438
590	0.6647	0.6914	0.7076	0.7134	0.7093
600	0.6939	0.6561	0.6144	0.5651	0.5199
610	0.4671	0.3816	0.3070	0.2430	0.1898
620	0.1470	0.1209	0.0975	0.0832	0.0765
630	0.0702	0.0644	0.0550	0.0541	0.0496
640	0.0455	0.0419	0.0386	0.0358	0.0335
650	0.0315	0.0329	0.0341	0.0353	0.0364
660	0.0373	0.0392	0.0390	0.0397	0.0404
670	0.0409	0.0413	0.0417	0.0419	0.0420
680	0.0420	0.0419	0.0418	0.0416	0.0413
690	0.0410	0.0405	0.0401	0.0395	0.0389
700	0.0383	0.0370	0.0359	0.0347	0.0336
710	0.0324	0.0313	0.0302	0.0292	0.0281
720	0.0271	0.0261	0.0251	0.0236	0.0217
730	0.0200	0.0184	0.0171	0.0160	0.0150
740	0.0143	0.0137	0.0134	0.0132	0.0132
750	0.0135	0.0149	0.0163	0.0177	0.0191

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GREEN RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0205	0.0219	0.0233	0.0247	0.0261
770	0.0275	0.0289	0.0303	0.0331	0.0368
780	0.0401	0.0430	0.0454	0.0473	0.0489
790	0.0499	0.0506	0.0508	0.0506	0.0501
800	0.0490	0.0435	0.0383	0.0334	0.0289
810	0.0247	0.0208	0.0172	0.0139	0.0109
820	0.0082	0.0058	0.0037	0.0028	0.0028
830	0.0028	0.0028	0.0027	0.0027	0.0027
840	0.0027	0.0027	0.0027	0.0027	0.0027
850	0.0026	0.0025	0.0024	0.0023	0.0022
860	0.0021	0.0021	0.0021	0.0021	0.0021
870	0.0022	0.0023	0.0024	0.0023	0.0019
880	0.0017	0.0016	0.0016	0.0018	0.0020
890	0.0024	0.0030	0.0037	0.0045	0.0054
900	0.0065	0.0099	0.0128	0.0157	0.0182
910	0.0206	0.0227	0.0246	0.0263	0.0278
920	0.0290	0.0300	0.0308	0.0304	0.0291
930	0.0278	0.0266	0.0256	0.0246	0.0236
940	0.0228	0.0220	0.0213	0.0207	0.0202
950	0.0198	0.0173	0.0152	0.0135	0.0123
960	0.0116	0.0114	0.0117	0.0123	0.0136
970	0.0152	0.0174	0.0201	0.0265	0.0361
980	0.0451	0.0533	0.0608	0.0677	0.0740
990	0.0797	0.0846	0.0850	0.0927	0.0957
1000	0.0982	0.0953	0.0926	0.0900	0.0876
1010	0.0853	0.0833	0.0813	0.0796	0.0780
1020	0.0766	0.0754	0.0743	0.0702	0.0638
1030	0.0586	0.0547	0.0520	0.0507	0.0506
1040	0.0519	0.0543	0.0581	0.0631	0.0695
1050	0.0770	0.0841	0.0927	0.1029	0.1146
1060	0.1279	0.1429	0.1557	0.1779	0.1978
1070	0.2195	0.2430	0.2682	0.3234	0.4030
1080	0.4747	0.5405	0.5978	0.6489	0.6907
1090	0.7262	0.7526	0.7722	0.7835	0.7854
1100	0.7794	0.6883	0.6021	0.5209	0.4447
1110	0.3743	0.3081	0.2468	0.1906	0.1393
1120	0.0942	0.0525	0.0162	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0001				

RED RESPONSIVITY, CAMERA FC2A

CAMERA-DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
350	.217329E-05	0.0000	.374893E-04	0.0002	0.0004
360	0.0008	0.0012	0.0017	0.0023	0.0030
370	0.0037	0.0046	0.0055	0.0073	0.0097
380	0.0119	0.0139	0.0159	0.0176	0.0193
390	0.0207	0.0221	0.0233	0.0243	0.0252
400	0.0260	0.0259	0.0255	0.0257	0.0256
410	0.0254	0.0252	0.0250	0.0248	0.0245
420	0.0242	0.0239	0.0235	0.0231	0.0226
430	0.0222	0.0217	0.0211	0.0206	0.0200
440	0.0194	0.0189	0.0182	0.0175	0.0168
450	0.0161	0.0147	0.0134	0.0122	0.0111
460	0.0101	0.0091	0.0083	0.0075	0.0068
470	0.0063	0.0058	0.0054	0.0054	0.0058
480	0.0061	0.0065	0.0068	0.0071	0.0074
490	0.0077	0.0079	0.0081	0.0083	0.0085
500	0.0087	0.0086	0.0086	0.0085	0.0085
510	0.0095	0.0085	0.0086	0.0086	0.0087
520	0.0088	0.0089	0.0090	0.0088	0.0084
530	0.0082	0.0090	0.0080	0.0081	0.0083
540	0.0086	0.0090	0.0096	0.0103	0.0111
550	0.0120	0.0105	0.0096	0.0095	0.0100
560	0.0112	0.0131	0.0157	0.0189	0.0229
570	0.0275	0.0313	0.0378	0.0450	0.0561
580	0.0743	0.0917	0.1203	0.1602	0.2115
590	0.2753	0.3365	0.4160	0.5128	0.6263
600	0.7555	0.9766	1.1017	1.2809	1.4643
610	1.6506	1.8808	2.0555	2.2953	2.4798
620	2.6503	2.8174	2.5825	3.0512	3.1194
630	3.1600	3.1262	3.0887	3.0476	3.0030
640	2.9559	2.8674	2.7941	2.7342	2.6905
650	2.6603	2.6726	2.6866	2.7019	2.7188
660	2.7377	2.7709	2.7050	2.8217	2.8396
670	2.8519	2.8497	2.8556	2.8722	2.8556
680	2.9231	3.0079	3.0706	3.1091	3.1259
690	3.1215	3.0586	2.9904	2.9171	2.8384
700	2.7540	2.6419	2.5359	2.4359	2.3421
710	2.2536	2.2360	2.1904	2.1203	2.0216
720	1.8995	1.7348	1.5625	1.3713	1.1806
730	1.0135	0.8923	0.7027	0.6873	0.6034
740	0.5311	0.4999	0.4517	0.4165	0.3844
750	0.3553	0.3462	0.3363	0.3254	0.3137

RED RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
760	0.3011	0.2876	0.2733	0.2582	0.2421
770	0.2254	0.2059	0.1879	0.1763	0.1697
780	0.1632	0.1569	0.1506	0.1444	0.1384
790	0.1324	0.1265	0.1207	0.1149	0.1093
800	0.1038	0.0969	0.0904	0.0843	0.0784
810	0.0729	0.0677	0.0628	0.0582	0.0539
820	0.0499	0.0462	0.0427	0.0398	0.0373
830	0.0351	0.0330	0.0311	0.0294	0.0280
840	0.0267	0.0256	0.0247	0.0241	0.0236
850	0.0234	0.0261	0.0265	0.0306	0.0324
860	0.0340	0.0353	0.0363	0.0370	0.0374
870	0.0376	0.0374	0.0370	0.0349	0.0313
880	0.0279	0.0245	0.0216	0.0187	0.0159
890	0.0134	0.0111	0.0069	0.0070	0.0052
900	0.0037	0.0037	0.0036	0.0036	0.0036
910	0.0035	0.0035	0.0035	0.0035	0.0034
920	0.0034	0.0034	0.0034	0.0034	0.0034
930	0.0034	0.0034	0.0034	0.0034	0.0033
940	0.0033	0.0033	0.0033	0.0033	0.0033
950	0.0033	0.0033	0.0032	0.0032	0.0032
960	0.0032	0.0031	0.0031	0.0031	0.0031
970	0.0031	0.0031	0.0030	0.0029	0.0026
980	0.0023	0.0022	0.0020	0.0020	0.0019
990	0.0020	0.0021	0.0022	0.0024	0.0027
1000	0.0030	0.0042	0.0053	0.0064	0.0073
1010	0.0092	0.0090	0.0057	0.0103	0.0109
1020	0.0114	0.0117	0.0120	0.0119	0.0115
1030	0.0111	0.0108	0.0104	0.0100	0.0097
1040	0.0093	0.0090	0.0086	0.0083	0.0079
1050	0.0076	0.0071	0.0067	0.0063	0.0059
1060	0.0055	0.0052	0.0049	0.0046	0.0043
1070	0.0041	0.0039	0.0037	0.0037	0.0038
1080	0.0039	0.0040	0.0041	0.0041	0.0041
1090	0.0041	0.0041	0.0040	0.0039	0.0038
1100	0.0037	0.0032	0.0028	0.0025	0.0021
1110	0.0018	0.0015	0.0012	0.0009	0.0007
1120	0.0004	0.0002	0.0001	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IRI RESPONSIVITY, CAMERA FC2A

CAMERA CICLE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.844199E-07	0.0010	0.0019	0.0029	0.0039
360	0.0049	0.0060	0.0070	0.0080	0.0091
370	0.0101	0.0112	0.0123	0.0138	0.0155
380	0.0171	0.0197	0.0201	0.0214	0.0226
390	0.0236	0.0246	0.0255	0.0262	0.0268
400	0.0274	0.0273	0.0273	0.0272	0.0270
410	0.0269	0.0267	0.0265	0.0262	0.0260
420	0.0256	0.0253	0.0249	0.0244	0.0238
430	0.0231	0.0225	0.0218	0.0212	0.0206
440	0.0200	0.0194	0.0188	0.0182	0.0176
450	0.0171	0.0164	0.0158	0.0152	0.0146
460	0.0140	0.0135	0.0130	0.0126	0.0121
470	0.0117	0.0113	0.0110	0.0107	0.0104
480	0.0101	0.0099	0.0097	0.0095	0.0093
490	0.0092	0.0092	0.0091	0.0091	0.0092
500	0.0092	0.0097	0.0101	0.0105	0.0108
510	0.0111	0.0115	0.0117	0.0120	0.0122
520	0.0124	0.0126	0.0128	0.0128	0.0128
530	0.0127	0.0127	0.0127	0.0126	0.0126
540	0.0126	0.0126	0.0126	0.0127	0.0127
550	0.0127	0.0124	0.0121	0.0119	0.0118
560	0.0118	0.0118	0.0119	0.0121	0.0124
570	0.0127	0.0131	0.0136	0.0147	0.0163
580	0.0177	0.0191	0.0204	0.0215	0.0226
590	0.0235	0.0243	0.0250	0.0256	0.0260
600	0.0264	0.0261	0.0257	0.0254	0.0250
610	0.0246	0.0242	0.0238	0.0234	0.0230
620	0.0225	0.0221	0.0216	0.0210	0.0203
630	0.0196	0.0189	0.0183	0.0177	0.0172
640	0.0166	0.0162	0.0157	0.0153	0.0150
650	0.0146	0.0145	0.0144	0.0143	0.0142
660	0.0141	0.0140	0.0135	0.0139	0.0138
670	0.0136	0.0135	0.0134	0.0133	0.0130
680	0.0128	0.0126	0.0124	0.0123	0.0121
690	0.0121	0.0120	0.0120	0.0120	0.0120
700	0.0121	0.0119	0.0117	0.0117	0.0117
710	0.0118	0.0120	0.0123	0.0126	0.0130
720	0.0135	0.0141	0.0148	0.0131	0.0098
730	0.0073	0.0056	0.0049	0.0051	0.0061
740	0.0079	0.0107	0.0143	0.0188	0.0240
750	0.0303	0.0264	0.0252	0.0267	0.0310

IRI RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0379	0.0475	0.0557	0.0745	0.0917
770	0.1116	0.1341	0.1589	0.1630	0.1509
780	0.1493	0.1584	0.1780	0.2079	0.2483
790	0.2987	0.3593	0.4200	0.5105	0.6011
800	0.7006	0.8118	0.9259	1.0420	1.1555
810	1.2887	1.4416	1.6141	1.8050	2.0175
820	2.2484	2.4968	2.7638	3.1189	3.5165
830	3.9711	4.1838	4.4527	4.6910	4.8876
840	5.1360	5.1271	5.1689	5.1417	5.0692
850	4.9732	4.8103	4.6654	4.5326	4.4143
860	4.3207	4.2474	4.1972	4.1684	4.1610
870	4.1759	4.2133	4.2723	4.3958	4.5641
880	4.7235	4.8738	5.0147	5.1957	5.3838
890	5.5182	5.5973	5.6200	5.5837	5.4929
900	5.3446	5.1063	4.8442	4.5137	4.1431
910	3.7889	3.4520	3.1322	2.8241	2.5278
920	2.2548	2.0051	1.7776	1.5822	1.4155
930	1.2613	1.1217	0.9956	0.9012	0.8314
940	0.7650	0.7027	0.6437	0.5887	0.5371
950	0.4896	0.4615	0.4345	0.4084	0.3834
960	0.3595	0.3367	0.3150	0.2943	0.2749
970	0.2567	0.2397	0.2239	0.2120	0.2036
980	0.1955	0.1878	0.1804	0.1733	0.1666
990	0.1601	0.1539	0.1481	0.1425	0.1373
1000	0.1323	0.1284	0.1246	0.1210	0.1175
1010	0.1142	0.1111	0.1081	0.1053	0.1027
1020	0.1003	0.0981	0.0960	0.0944	0.0932
1030	0.0921	0.0911	0.0902	0.0894	0.0887
1040	0.0881	0.0876	0.0872	0.0869	0.0867
1050	0.0866	0.0870	0.0873	0.0877	0.0882
1060	0.0887	0.0893	0.0899	0.0905	0.0912
1070	0.0920	0.0928	0.0937	0.0970	0.1024
1080	0.1069	0.1107	0.1139	0.1163	0.1179
1090	0.1186	0.1185	0.1177	0.1161	0.1136
1100	0.1102	0.0973	0.0851	0.0737	0.0630
1110	0.0530	0.0436	0.0350	0.0270	0.0197
1120	0.0133	0.0074	0.0023	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

182 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0029	0.0058	0.0086	0.0113
360	0.0139	0.0165	0.0191	0.0216	0.0240
370	0.0263	0.0286	0.0309	0.0334	0.0361
380	0.0386	0.0410	0.0431	0.0451	0.0470
390	0.0486	0.0501	0.0514	0.0525	0.0534
400	0.0542	0.0535	0.0529	0.0522	0.0517
410	0.0512	0.0507	0.0503	0.0500	0.0497
420	0.0494	0.0492	0.0491	0.0487	0.0481
430	0.0477	0.0475	0.0474	0.0474	0.0476
440	0.0480	0.0485	0.0491	0.0500	0.0509
450	0.0521	0.0457	0.0408	0.0374	0.0354
460	0.0350	0.0360	0.0386	0.0427	0.0483
470	0.0554	0.0641	0.0743	0.0904	0.1116
480	0.1329	0.1545	0.1761	0.1979	0.2199
490	0.2419	0.2640	0.2861	0.3083	0.3305
500	0.3526	0.4030	0.4479	0.4877	0.5223
510	0.5519	0.5765	0.5962	0.6111	0.6210
520	0.6264	0.6269	0.6227	0.5921	0.5402
530	0.4905	0.4429	0.3977	0.3548	0.3145
540	0.2765	0.2410	0.2080	0.1777	0.1499
550	0.1247	0.1146	0.1051	0.0960	0.0875
560	0.0795	0.0720	0.0650	0.0586	0.0526
570	0.0471	0.0421	0.0376	0.0350	0.0338
580	0.0326	0.0315	0.0305	0.0295	0.0286
590	0.0277	0.0269	0.0261	0.0254	0.0247
600	0.0241	0.0236	0.0231	0.0227	0.0224
610	0.0220	0.0218	0.0215	0.0213	0.0212
620	0.0211	0.0210	0.0210	0.0210	0.0211
630	0.0212	0.0214	0.0216	0.0218	0.0221
640	0.0223	0.0226	0.0230	0.0233	0.0237
650	0.0241	0.0248	0.0254	0.0261	0.0267
660	0.0273	0.0279	0.0285	0.0291	0.0297
670	0.0302	0.0308	0.0313	0.0310	0.0300
680	0.0293	0.0289	0.0288	0.0289	0.0293
690	0.0300	0.0309	0.0322	0.0336	0.0354
700	0.0374	0.0386	0.0402	0.0422	0.0448
710	0.0477	0.0511	0.0549	0.0592	0.0639
720	0.0690	0.0745	0.0805	0.0903	0.1032
730	0.1154	0.1269	0.1376	0.1475	0.1568
740	0.1652	0.1730	0.1800	0.1862	0.1917
750	0.1964	0.2014	0.2054	0.2085	0.2107

IR2 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2121	0.2126	0.2122	0.2109	0.2088
770	0.2058	0.2020	0.1974	0.1874	0.1729
780	0.1593	0.1464	0.1344	0.1231	0.1126
790	0.1029	0.0939	0.0857	0.0782	0.0715
800	0.0654	0.0625	0.0599	0.0576	0.0556
810	0.0539	0.0524	0.0513	0.0504	0.0498
820	0.0495	0.0495	0.0457	0.0494	0.0485
830	0.0482	0.0486	0.0495	0.0510	0.0531
840	0.0558	0.0591	0.0629	0.0674	0.0725
850	0.0779	0.0556	0.0389	0.0278	0.0221
860	0.0221	0.0273	0.0383	0.0548	0.0769
870	0.1047	0.1391	0.1773	0.1703	0.1295
880	0.1108	0.1159	0.1452	0.1980	0.2758
890	0.3776	0.5050	0.6592	0.8369	1.0416
900	1.2678	1.4780	1.7655	2.1397	2.5743
910	3.0990	3.8049	4.5158	5.3903	6.3198
920	7.1301	7.8122	8.3970	8.8665	9.2148
930	9.4624	9.5263	9.5677	9.5440	9.4814
940	9.4329	9.3974	9.3726	9.4063	9.4288
950	9.3888	9.2913	9.1076	8.8255	8.4701
960	8.0648	7.5880	7.0636	6.4766	5.8217
970	5.2052	4.6301	4.0934	3.5502	3.1344
980	2.7398	2.4194	2.1309	1.8849	1.6741
990	1.4852	1.3180	1.1726	1.0585	0.9611
1000	0.8709	0.8163	0.7638	0.7135	0.6653
1010	0.6192	0.5756	0.5341	0.4950	0.4592
1020	0.4239	0.3919	0.3624	0.3408	0.3257
1030	0.3113	0.2977	0.2848	0.2725	0.2611
1040	0.2504	0.2403	0.2310	0.2224	0.2145
1050	0.2072	0.2035	0.2001	0.1969	0.1940
1060	0.1912	0.1887	0.1864	0.1842	0.1823
1070	0.1806	0.1791	0.1778	0.1805	0.1865
1080	0.1916	0.1955	0.1983	0.2000	0.2005
1090	0.1999	0.1981	0.1952	0.1910	0.1857
1100	0.1793	0.1583	0.1385	0.1198	0.1024
1110	0.0860	0.0709	0.0568	0.0439	0.0322
1120	0.0215	0.0120	0.0037	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IR3 RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0060	0.0120	0.0180	0.0239
360	0.0299	0.0358	0.0417	0.0476	0.0535
370	0.0594	0.0652	0.0711	0.0790	0.0885
380	0.0973	0.1054	0.1127	0.1193	0.1252
390	0.1304	0.1349	0.1387	0.1417	0.1441
400	0.1458	0.1385	0.1320	0.1261	0.1209
410	0.1164	0.1126	0.1055	0.1072	0.1055
420	0.1046	0.1044	0.1050	0.1075	0.1117
430	0.1163	0.1213	0.1266	0.1322	0.1382
440	0.1445	0.1512	0.1582	0.1656	0.1733
450	0.1814	0.1935	0.2053	0.2167	0.2280
460	0.2389	0.2496	0.2559	0.2700	0.2798
470	0.2894	0.2987	0.3076	0.3204	0.3361
480	0.3502	0.3627	0.3735	0.3827	0.3903
490	0.3960	0.4001	0.4023	0.4029	0.4018
500	0.3938	0.3796	0.3613	0.3439	0.3274
510	0.3117	0.2969	0.2829	0.2697	0.2573
520	0.2456	0.2347	0.2245	0.2163	0.2096
530	0.2032	0.1971	0.1913	0.1858	0.1806
540	0.1757	0.1712	0.1669	0.1630	0.1595
550	0.1563	0.1539	0.1517	0.1499	0.1482
560	0.1469	0.1458	0.1450	0.1444	0.1441
570	0.1440	0.1442	0.1446	0.1456	0.1471
580	0.1480	0.1506	0.1525	0.1546	0.1569
590	0.1593	0.1619	0.1646	0.1674	0.1704
600	0.1736	0.1764	0.1795	0.1828	0.1863
610	0.1900	0.1939	0.1900	0.2023	0.2068
620	0.2116	0.2165	0.2217	0.2271	0.2327
630	0.2385	0.2444	0.2506	0.2570	0.2636
640	0.2703	0.2773	0.2844	0.2918	0.2993
650	0.3070	0.3141	0.3215	0.3293	0.3374
660	0.3458	0.3546	0.3637	0.3731	0.3829
670	0.3929	0.4033	0.4140	0.4247	0.4353
680	0.4464	0.4579	0.4658	0.4822	0.4949
690	0.5081	0.5216	0.5356	0.5499	0.5646
700	0.5797	0.6154	0.6479	0.6771	0.7029
710	0.7257	0.7453	0.7617	0.7750	0.7854
720	0.7926	0.7967	0.7981	0.7920	0.7799
730	0.7662	0.7511	0.7344	0.7163	0.6968
740	0.6757	0.6533	0.6293	0.6041	0.5776
750	0.5496	0.4973	0.4415	0.4014	0.3578

[illegible] RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.3169	0.2788	0.2435	0.2109	0.1810
770	0.1537	0.1290	0.1069	0.0936	0.0877
780	0.0821	0.0767	0.0715	0.0672	0.0628
790	0.0537	0.0550	0.0515	0.0483	0.0453
800	0.0427	0.0410	0.0395	0.0382	0.0370
810	0.0359	0.0350	0.0342	0.0336	0.0331
820	0.0327	0.0325	0.0324	0.0322	0.0319
830	0.0319	0.0321	0.0325	0.0331	0.0339
840	0.0350	0.0364	0.0379	0.0397	0.0417
850	0.0439	0.0428	0.0426	0.0432	0.0447
860	0.0469	0.0501	0.0541	0.0588	0.0646
870	0.0710	0.0785	0.0868	0.0874	0.0819
880	0.0805	0.0829	0.0950	0.0994	0.1137
890	0.1319	0.1544	0.1812	0.2118	0.2468
900	0.2962	0.2625	0.2535	0.2613	0.2849
910	0.3231	0.3770	0.4468	0.5323	0.6337
920	0.7511	0.8833	1.0339	1.2573	1.5426
930	1.8251	2.1042	2.3803	2.6533	2.9235
940	3.1905	3.4545	3.7155	3.9738	4.2289
950	4.4805	4.8470	5.1766	5.4678	5.7233
960	5.9394	6.1167	6.2547	6.3286	6.3532
970	6.3600	6.3501	6.3236	6.2602	6.1687
980	6.0750	5.9793	5.8814	5.7728	5.6592
990	5.5510	5.4480	5.3500	5.2653	5.1810
1000	5.0874	4.9811	4.8731	4.7616	4.6477
1010	4.5337	4.4197	4.3057	4.1894	4.0730
1020	3.9584	3.8461	3.7359	3.6310	3.5286
1030	3.4251	3.3205	3.2145	3.1060	2.9952
1040	2.9853	2.7763	2.6681	2.5602	2.4535
1050	2.3483	2.2383	2.1362	2.0438	1.9588
1060	1.9778	1.8010	1.7284	1.6622	1.6010
1070	1.5410	1.4822	1.4245	1.3720	1.3229
1080	1.2723	1.2202	1.1066	1.1109	1.0536
1090	0.9957	0.9371	0.8781	0.8189	0.7591
1100	0.6985	0.6355	0.5724	0.5052	0.4369
1110	0.3719	0.3108	0.2529	0.1975	0.1454
1120	0.0967	0.0549	0.0179	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0007				

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SURVEY RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.349346E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0041	0.0095	0.0160
370	0.0237	0.0327	0.0428	0.0608	0.0852
380	0.1084	0.1306	0.1516	0.1716	0.1905
390	0.2084	0.2253	0.2411	0.2559	0.2697
400	0.2825	0.2921	0.3019	0.3119	0.3221
410	0.3325	0.3437	0.3548	0.3660	0.3772
420	0.3884	0.3996	0.4108	0.4234	0.4369
430	0.4501	0.4628	0.4751	0.4870	0.4984
440	0.5094	0.5200	0.5301	0.5357	0.5489
450	0.5576	0.5632	0.5688	0.5743	0.5798
460	0.5853	0.5907	0.5961	0.6015	0.6069
470	0.6122	0.6175	0.6228	0.6283	0.6339
480	0.6397	0.6455	0.6513	0.6572	0.6631
490	0.6691	0.6769	0.6838	0.6899	0.6951
500	0.6994	0.6980	0.6973	0.6971	0.6976
510	0.6987	0.7015	0.7046	0.7080	0.7115
520	0.7153	0.7193	0.7236	0.7293	0.7362
530	0.7429	0.7496	0.7561	0.7625	0.7687
540	0.7748	0.7808	0.7866	0.7923	0.7979
550	0.8032	0.8061	0.8092	0.8127	0.8164
560	0.8204	0.8247	0.8293	0.8341	0.8393
570	0.8447	0.8508	0.8567	0.8629	0.8593
580	0.8754	0.8814	0.8872	0.8927	0.8981
590	0.9033	0.9097	0.9137	0.9183	0.9224
600	0.9262	0.9274	0.9266	0.9297	0.9308
610	0.9418	0.9329	0.9335	0.9348	0.9358
620	0.9367	0.9376	0.9384	0.9393	0.9403
630	0.9412	0.9421	0.9429	0.9436	0.9442
640	0.9448	0.9453	0.9458	0.9462	0.9465
650	0.9468	0.9470	0.9471	0.9472	0.9472
660	0.9472	0.9471	0.9470	0.9468	0.9465
670	0.9462	0.9459	0.9455	0.9447	0.9434
680	0.9423	0.9413	0.9403	0.9394	0.9386
690	0.9379	0.9373	0.9368	0.9363	0.9359
700	0.9356	0.9354	0.9353	0.9352	0.9352
710	0.9353	0.9354	0.9356	0.9359	0.9362
720	0.9366	0.9370	0.9376	0.9386	0.9401
730	0.9415	0.9428	0.9441	0.9452	0.9462
740	0.9472	0.9480	0.9488	0.9495	0.9500
750	0.9505	0.9497	0.9491	0.9485	0.9480

SURVEY RESPONSIVITY, CAMERA FC2A

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9477	0.9474	0.9472	0.9470	0.9470
770	0.9471	0.9473	0.9475	0.9481	0.9491
780	0.9499	0.9505	0.9510	0.9513	0.9514
790	0.9514	0.9512	0.9509	0.9504	0.9498
800	0.9490	0.9461	0.9435	0.9410	0.9388
810	0.9367	0.9348	0.9331	0.9317	0.9304
820	0.9293	0.9283	0.9276	0.9271	0.9267
830	0.9265	0.9266	0.9265	0.9275	0.9283
840	0.9293	0.9306	0.9321	0.9340	0.9361
850	0.9381	0.9372	0.9368	0.9367	0.9369
860	0.9375	0.9385	0.9399	0.9416	0.9437
870	0.9461	0.9490	0.9522	0.9591	0.9691
880	0.9784	0.9869	0.9946	1.0019	1.0082
890	1.0138	1.0186	1.0226	1.0258	1.0283
900	1.0300	1.0268	1.0235	1.0201	1.0165
910	1.0129	1.0091	1.0052	1.0012	0.9971
920	0.9928	0.9885	0.9840	0.9794	0.9750
930	0.9706	0.9711	0.9708	0.9694	0.9671
940	0.9639	0.9596	0.9544	0.9480	0.9407
950	0.9325	0.9239	0.9148	0.9049	0.8943
960	0.8835	0.8725	0.8613	0.8500	0.8385
970	0.8269	0.8151	0.8032	0.7912	0.7792
980	0.7671	0.7549	0.7426	0.7301	0.7176
990	0.7050	0.6922	0.6793	0.6663	0.6531
1000	0.6398	0.6252	0.6106	0.5960	0.5813
1010	0.5667	0.5520	0.5374	0.5228	0.5082
1020	0.4937	0.4792	0.4647	0.4496	0.4339
1030	0.4186	0.4036	0.3850	0.3747	0.3609
1040	0.3474	0.3341	0.3214	0.3089	0.2968
1050	0.2849	0.2738	0.2620	0.2525	0.2423
1060	0.2324	0.2227	0.2134	0.2043	0.1954
1070	0.1868	0.1785	0.1703	0.1632	0.1568
1080	0.1502	0.1497	0.1370	0.1303	0.1235
1090	0.1167	0.1099	0.1030	0.0961	0.0892
1100	0.0824	0.0728	0.0637	0.0551	0.0470
1110	0.0396	0.0325	0.0261	0.0202	0.0148
1120	0.0099	0.0055	0.0017	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	.103120E-04				

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC18)
CAMERA CIRCLE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.6528	0.6528	0.6528	0.6528	0.6528
360	0.6528	0.6528	0.6528	0.6528	0.6528
370	0.6528	0.6528	0.6528	0.6525	0.6519
380	0.6515	0.6511	0.6509	0.6507	0.6507
390	0.6508	0.6510	0.6513	0.6517	0.6522
400	0.6528	0.6532	0.6537	0.6544	0.6552
410	0.6563	0.6574	0.6588	0.6603	0.6620
420	0.6638	0.6658	0.6680	0.6715	0.6761
430	0.6804	0.6845	0.6885	0.6922	0.6958
440	0.6991	0.7022	0.7052	0.7079	0.7104
450	0.7128	0.7133	0.7139	0.7146	0.7153
460	0.7161	0.7169	0.7178	0.7188	0.7198
470	0.7209	0.7220	0.7232	0.7250	0.7273
480	0.7295	0.7315	0.7335	0.7353	0.7370
490	0.7385	0.7399	0.7412	0.7424	0.7435
500	0.7444	0.7443	0.7443	0.7443	0.7443
510	0.7443	0.7444	0.7445	0.7445	0.7447
520	0.7448	0.7449	0.7451	0.7455	0.7462
530	0.7468	0.7474	0.7478	0.7492	0.7485
540	0.7488	0.7489	0.7491	0.7491	0.7490
550	0.7499	0.7482	0.7475	0.7468	0.7461
560	0.7455	0.7449	0.7442	0.7437	0.7432
570	0.7427	0.7422	0.7417	0.7415	0.7414
580	0.7413	0.7411	0.7409	0.7406	0.7404
590	0.7400	0.7397	0.7393	0.7388	0.7383
600	0.7378	0.7371	0.7363	0.7356	0.7348
610	0.7340	0.7332	0.7324	0.7316	0.7308
620	0.7300	0.7291	0.7283	0.7275	0.7267
630	0.7259	0.7251	0.7242	0.7233	0.7224
640	0.7214	0.7204	0.7193	0.7183	0.7172
650	0.7160	0.7148	0.7136	0.7124	0.7111
660	0.7098	0.7085	0.7071	0.7057	0.7042
670	0.7028	0.7012	0.6997	0.6979	0.6959
680	0.6940	0.6921	0.6902	0.6884	0.6866
690	0.6848	0.6831	0.6814	0.6798	0.6781
700	0.6765	0.6752	0.6735	0.6726	0.6712
710	0.6699	0.6685	0.6672	0.6658	0.6644
720	0.6630	0.6616	0.6602	0.6587	0.6572
730	0.6557	0.6542	0.6528	0.6513	0.6498
740	0.6483	0.6468	0.6453	0.6439	0.6424
750	0.6409	0.6397	0.6384	0.6371	0.6357

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC18)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.6343	0.6329	0.6314	0.6299	0.6283
770	0.6267	0.6251	0.6234	0.6214	0.6191
780	0.6170	0.6148	0.6127	0.6107	0.6087
790	0.6067	0.6049	0.6030	0.6012	0.5995
800	0.5978	0.5961	0.5945	0.5929	0.5914
810	0.5899	0.5885	0.5872	0.5859	0.5847
820	0.5835	0.5824	0.5813	0.5797	0.5778
830	0.5761	0.5746	0.5734	0.5725	0.5717
840	0.5713	0.5710	0.5711	0.5713	0.5719
850	0.5726	0.5763	0.5797	0.5830	0.5860
860	0.5888	0.5915	0.5939	0.5960	0.5980
870	0.5998	0.6013	0.6027	0.6028	0.6020
880	0.6013	0.6006	0.6001	0.5996	0.5992
890	0.5990	0.5988	0.5987	0.5987	0.5988
900	0.5990	0.5995	0.6001	0.6007	0.6014
910	0.6022	0.6030	0.6039	0.6048	0.6059
920	0.6070	0.6082	0.6094	0.6111	0.6132
930	0.6152	0.6171	0.6190	0.6209	0.6227
940	0.6244	0.6261	0.6277	0.6293	0.6308
950	0.6323	0.6339	0.6354	0.6368	0.6382
960	0.6394	0.6406	0.6417	0.6427	0.6436
970	0.6445	0.6452	0.6459	0.6459	0.6455
980	0.6452	0.6450	0.6442	0.6448	0.6448
990	0.6449	0.6450	0.6453	0.6456	0.6460
1000	0.6465	0.6484	0.6501	0.6517	0.6531
1010	0.6544	0.6556	0.6566	0.6575	0.6582
1020	0.6588	0.6593	0.6556	0.6589	0.6574
1030	0.6560	0.6548	0.6537	0.6528	0.6521
1040	0.6514	0.6510	0.6507	0.6506	0.6506
1050	0.6507	0.6527	0.6545	0.6562	0.6577
1060	0.6592	0.6605	0.6617	0.6628	0.6637
1070	0.6645	0.6653	0.6658	0.6659	0.6654
1080	0.6650	0.6646	0.6642	0.6638	0.6635
1090	0.6632	0.6629	0.6627	0.6624	0.6623
1100	0.6621	0.6621	0.6621	0.6621	0.6621
1110	0.6621	0.6621	0.6621	0.6621	0.6621
1120	0.6621	0.6621	0.6621	0.6621	0.6621
1130	0.6621	0.6621	0.6621	0.6621	0.6621
1140	0.6621	0.6621	0.6621	0.6621	0.6621
1150	0.6621				

B31 RESPONSIVITY, CAMERA FC18

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.315427E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0016	0.0056	0.0105	0.0166
370	0.0237	0.0319	0.0411	0.0565	0.0769
380	0.0967	0.1157	0.1340	0.1516	0.1686
390	0.1848	0.2005	0.2154	0.2297	0.2434
400	0.2565	0.2646	0.2728	0.2812	0.2896
410	0.2981	0.3068	0.3156	0.3245	0.3336
420	0.3428	0.3522	0.3617	0.3732	0.3864
430	0.3992	0.4116	0.4236	0.4353	0.4465
440	0.4572	0.4675	0.4774	0.4867	0.4956
450	0.5040	0.5096	0.5133	0.5180	0.5227
460	0.5274	0.5321	0.5368	0.5415	0.5462
470	0.5509	0.5557	0.5605	0.5657	0.5712
480	0.5766	0.5819	0.5871	0.5922	0.5972
490	0.6020	0.6067	0.6112	0.6157	0.6200
500	0.6241	0.6266	0.6292	0.6319	0.6348
510	0.6377	0.6408	0.6440	0.6473	0.6507
520	0.6543	0.6580	0.6618	0.6661	0.6708
530	0.6756	0.6803	0.6850	0.6897	0.6944
540	0.6991	0.7037	0.7083	0.7129	0.7175
550	0.7221	0.7266	0.7310	0.7355	0.7399
560	0.7443	0.7486	0.7530	0.7573	0.7615
570	0.7658	0.7700	0.7742	0.7790	0.7842
580	0.7891	0.7939	0.7984	0.8027	0.8068
590	0.8107	0.8144	0.8178	0.8211	0.8241
600	0.8269	0.8284	0.8299	0.8314	0.8328
610	0.8342	0.8356	0.8365	0.8382	0.8394
620	0.8406	0.8418	0.8429	0.8442	0.8456
630	0.8469	0.8481	0.8492	0.8502	0.8511
640	0.8519	0.8525	0.8530	0.8535	0.8538
650	0.8540	0.8538	0.8526	0.8533	0.8530
660	0.8526	0.8521	0.8516	0.8510	0.8503
670	0.8496	0.8499	0.8480	0.8465	0.8444
680	0.8425	0.8407	0.8391	0.8376	0.8363
690	0.8352	0.8343	0.8335	0.8328	0.8324
700	0.8320	0.8333	0.8344	0.8355	0.8365
710	0.8373	0.8381	0.8388	0.8394	0.8399
720	0.8404	0.8407	0.8409	0.8407	0.8400
730	0.8393	0.8387	0.8382	0.8377	0.8374
740	0.8370	0.8367	0.8365	0.8364	0.8363
750	0.8363	0.8370	0.8377	0.8384	0.8389

RB1 RESPONSIVITY, CAMERA FC1P

CAMERA DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
760	0.8394	0.8399	0.840[illegible]	0.8404	0.8406
770	0.8407	0.8407	0.8407	0.8408	0.8411
780	0.8412	0.8412	0.8409	0.8405	0.8400
790	0.8392	0.8383	0.8373	0.8361	0.8348
800	0.8332	0.8301	0.8271	0.8241	0.8213
810	0.8186	0.8161	0.8136	0.8113	0.8091
820	0.8070	0.8050	0.8031	0.8007	0.7979
830	0.7954	0.7932	0.7914	0.7900	0.7888
840	0.7880	0.7876	0.7874	0.7877	0.7882
850	0.7891	0.7941	0.7989	0.8033	0.8074
860	0.8112	0.8146	0.8177	0.8205	0.8230
870	0.8251	0.8268	0.8283	0.8291	0.8292
880	0.8291	0.8288	0.8282	0.8273	0.8263
890	0.8250	0.8234	0.8217	0.8197	0.8174
900	0.8149	0.8109	0.8067	0.8025	0.7984
910	0.7943	0.7902	0.7861	0.7819	0.7778
920	0.7737	0.7696	0.7655	0.7626	0.7608
930	0.7584	0.7557	0.7525	0.7488	0.7447
940	0.7401	0.7351	0.7256	0.7237	0.7172
950	0.7104	0.7006	0.6907	0.6807	0.6708
960	0.6608	0.6508	0.6407	0.6307	0.6206
970	0.6105	0.6004	0.5903	0.5804	0.5708
980	0.5611	0.5514	0.5416	0.5318	0.5218
990	0.5119	0.5018	0.4917	0.4816	0.4713
1000	0.4610	0.4498	0.4385	0.4273	0.4161
1010	0.4050	0.3939	0.3828	0.3717	0.3607
1020	0.3498	0.3390	0.3282	0.3165	0.3053
1030	0.2940	0.2830	0.2723	0.2620	0.2520
1040	0.2424	0.2330	0.2239	0.2151	0.2066
1050	0.1984	0.1914	0.1845	0.1776	0.1709
1060	0.1642	0.1575	0.1511	0.1446	0.1383
1070	0.1321	0.1260	0.1200	0.1142	0.1088
1080	0.1034	0.0980	0.0928	0.0876	0.0825
1090	0.0774	0.0724	0.0675	0.0627	0.0579
1100	0.0533	0.0470	0.0411	0.0356	0.0304
1110	0.0256	0.0211	0.0165	0.0130	0.0095
1120	0.0064	0.0036	0.0011	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BP2 RESPONSIVITY, CAMERA FC1F

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.158952E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0025	0.0033	0.0142
370	0.0211	0.0291	0.0382	0.0538	0.0746
380	0.0947	0.1139	0.1324	0.1501	0.1671
390	0.1834	0.1989	0.2137	0.2278	0.2412
400	0.2539	0.2609	0.2680	0.2753	0.2827
410	0.2903	0.2981	0.3061	0.3143	0.3227
420	0.3313	0.3401	0.3491	0.3605	0.3737
430	0.3865	0.3990	0.4110	0.4226	0.4338
440	0.4445	0.4547	0.4645	0.4737	0.4825
450	0.4907	0.4948	0.4989	0.5032	0.5074
460	0.5117	0.5161	0.5205	0.5250	0.5296
470	0.5342	0.5389	0.5436	0.5489	0.5547
480	0.5604	0.5660	0.5715	0.5769	0.5922
490	0.5874	0.5924	0.5973	0.6022	0.6068
500	0.6114	0.6145	0.6176	0.6209	0.6242
510	0.6277	0.6313	0.6349	0.6387	0.6425
520	0.6465	0.6505	0.6547	0.6593	0.6644
530	0.6694	0.6744	0.6753	0.6843	0.6892
540	0.6941	0.6990	0.7038	0.7087	0.7134
550	0.7192	0.7229	0.7276	0.7322	0.7368
560	0.7414	0.7459	0.7504	0.7549	0.7593
570	0.7637	0.7680	0.7723	0.7773	0.7827
580	0.7878	0.7927	0.7973	0.8017	0.8059
590	0.8098	0.8134	0.8168	0.8199	0.8228
600	0.8255	0.8263	0.8272	0.8281	0.8291
610	0.8300	0.8309	0.8319	0.8328	0.8338
620	0.8347	0.8357	0.8367	0.8382	0.8401
630	0.8418	0.8433	0.8447	0.8460	0.8470
640	0.8479	0.8487	0.8492	0.8497	0.8499
650	0.8500	0.8489	0.8478	0.8468	0.8458
660	0.8448	0.8438	0.8428	0.8418	0.8409
670	0.8400	0.8391	0.8382	0.8370	0.8356
680	0.8343	0.8332	0.8321	0.8312	0.8304
690	0.8297	0.8291	0.8286	0.8282	0.6279
700	0.8278	0.8286	0.8294	0.8301	0.8308
710	0.8315	0.8320	0.8326	0.8331	0.8335
720	0.8339	0.8342	0.8345	0.8345	0.8343
730	0.8340	0.8339	0.8337	0.8336	0.8335
740	0.8335	0.8335	0.8335	0.8336	0.9337
750	0.8339	0.8347	0.8354	0.8361	0.8367

BB? RESPONSIVITY, CAMERA FCIP

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.8372	0.8376	0.8380	0.8362	0.8384
770	0.8386	0.8386	0.8386	0.8388	0.8392
780	0.3394	0.8394	0.8392	0.8388	0.8383
790	0.8375	0.8366	0.8354	0.8341	0.8326
800	0.8310	0.8272	0.8236	0.8201	0.8169
810	0.9138	0.8109	0.8082	0.8056	0.8032
820	0.8010	0.7990	0.7971	0.7949	0.7925
830	0.7904	0.7886	0.7872	0.7861	0.7854
840	0.7849	0.7849	0.7852	0.7858	0.7867
850	0.7880	0.7937	0.7950	0.8040	0.8086
860	0.8129	0.8168	0.8203	0.8235	0.8264
870	0.8288	0.8309	0.8326	0.8335	0.8337
880	0.8336	0.8332	0.8326	0.8318	0.8307
890	0.8294	0.8279	0.8261	0.8240	0.8218
900	0.8192	0.8152	0.8110	0.8069	0.8028
910	0.7986	0.7945	0.7903	0.7861	0.7819
920	0.7776	0.7734	0.7691	0.7660	0.7638
930	0.7611	0.7580	0.7544	0.7504	0.7460
940	0.7411	0.7359	0.7301	0.7239	0.7172
950	0.7101	0.7003	0.6904	0.6804	0.6704
960	0.6604	0.6502	0.6401	0.6299	0.6196
970	0.6094	0.5991	0.5887	0.5785	0.5683
980	0.5580	0.5478	0.5376	0.5273	0.5170
990	0.5067	0.4964	0.4860	0.4756	0.4651
1000	0.4546	0.4434	0.4323	0.4211	0.4100
1010	0.3909	0.3078	0.3768	0.3658	0.3549
1020	0.3441	0.3333	0.3226	0.3114	0.2999
1030	0.2897	0.2778	0.2673	0.2572	0.2473
1040	0.2378	0.2285	0.2155	0.2108	0.2024
1050	0.1942	0.1873	0.1805	0.1737	0.1670
1060	0.1604	0.1539	0.1474	0.1411	0.1349
1070	0.1287	0.1227	0.1168	0.1113	0.1059
1080	0.1007	0.0955	0.0904	0.0854	0.0804
1090	0.0755	0.0707	0.0659	0.0612	0.0566
1100	0.0520	0.0459	0.0402	0.0347	0.0297
1110	0.0250	0.0205	0.0165	0.0127	0.0093
1120	0.0062	0.0034	0.0010	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

P93 RESPONSIVITY, CAMERA FCIE

CAMERA CICCE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
350	.300311E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0027	0.0085
370	0.0155	0.0238	0.0333	0.0499	0.0723
380	0.0938	0.1146	0.1345	0.1538	0.1722
390	0.1900	0.2070	0.2232	0.2388	0.2537
400	0.2678	0.2769	0.2860	0.2952	0.3044
410	0.3137	0.3230	0.3325	0.3420	0.3516
420	0.3613	0.3711	0.3810	0.3926	0.4054
430	0.4190	0.4302	0.4421	0.4537	0.4649
440	0.4757	0.4861	0.4961	0.5057	0.5149
450	0.5236	0.5292	0.5347	0.5402	0.5457
460	0.5512	0.5567	0.5622	0.5677	0.5732
470	0.5787	0.5842	0.5896	0.5954	0.6014
480	0.6074	0.6132	0.6190	0.6246	0.6302
490	0.6356	0.6409	0.6461	0.6512	0.6562
500	0.6611	0.6646	0.6682	0.6719	0.6756
510	0.6795	0.6934	0.6874	0.6915	0.6957
520	0.6999	0.7043	0.7087	0.7135	0.7186
530	0.7236	0.7287	0.7338	0.7388	0.7439
540	0.7489	0.7539	0.7589	0.7639	0.7688
550	0.7738	0.7786	0.7835	0.7883	0.7931
560	0.7978	0.8026	0.8073	0.8120	0.9167
570	0.8214	0.8260	0.8306	0.8360	0.8421
580	0.8478	0.8532	0.8584	0.8633	0.8678
590	0.8722	0.8762	0.8799	0.8633	0.8865
600	0.8894	0.8903	0.8912	0.8921	0.8931
610	0.8940	0.8950	0.8959	0.8969	0.8978
620	0.8988	0.8998	0.9008	0.9022	0.9040
630	0.9057	0.9072	0.9065	0.9097	0.9108
640	0.9117	0.9124	0.9131	0.9135	0.9138
650	0.9140	0.9132	0.9125	0.9117	0.9109
660	0.9101	0.9093	0.9085	0.9076	0.9068
670	0.9050	0.9051	0.9043	0.9030	0.9014
680	0.8999	0.8986	0.8974	0.8963	0.8953
690	0.8945	0.8938	0.8932	0.8928	0.8924
700	0.8922	0.8933	0.8943	0.8952	0.8961
710	0.8968	0.8975	0.8981	0.8986	0.8990
720	0.8994	0.8996	0.8958	0.8995	0.8987
730	0.8980	0.8974	0.8968	0.8964	0.8959
740	0.8956	0.8953	0.8951	0.8950	0.8949
750	0.8949	0.8958	0.8966	0.8974	0.8980

884 RESPONSIVITY, CAMERA FC1B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.8996	0.8991	0.8995	0.8998	0.9001
770	0.9002	0.9003	0.9003	0.9005	0.9008
780	0.9009	0.9008	0.9006	0.9002	0.8996
790	0.8988	0.8979	0.8968	0.8955	0.8941
800	0.8925	0.8888	0.8852	0.8819	0.8788
810	0.8758	0.8731	0.8705	0.8681	0.8659
820	0.8639	0.8621	0.8605	0.8587	0.8569
830	0.8553	0.8541	0.8531	0.8524	0.8520
840	0.8520	0.8522	0.8527	0.8536	0.8547
850	0.8561	0.8618	0.8672	0.8721	0.8767
860	0.8809	0.8847	0.8881	0.8912	0.8938
870	0.8961	0.8979	0.8954	0.8998	0.8995
880	0.8988	0.8980	0.8969	0.8956	0.8942
890	0.8925	0.8906	0.8885	0.8862	0.8836
900	0.8809	0.8767	0.8724	0.8682	0.8639
910	0.8597	0.8555	0.8513	0.8471	0.8430
920	0.8388	0.8346	0.8304	0.8278	0.8262
930	0.8242	0.8217	0.8166	0.8150	0.8110
940	0.8063	0.8012	0.7955	0.7893	0.7826
950	0.7753	0.7647	0.7540	0.7433	0.7325
960	0.7217	0.7108	0.6999	0.6891	0.6782
970	0.6672	0.6563	0.6454	0.6347	0.6242
980	0.6136	0.6030	0.5924	0.5817	0.5710
990	0.5603	0.5494	0.5386	0.5276	0.5166
1000	0.5056	0.4938	0.4820	0.4702	0.4584
1010	0.4466	0.4349	0.4231	0.4114	0.3998
1020	0.3882	0.3766	0.3651	0.3531	0.3407
1030	0.3286	0.3169	0.3055	0.2945	0.2837
1040	0.2733	0.2632	0.2534	0.2439	0.2346
1050	0.2256	0.2178	0.2101	0.2025	0.1949
1060	0.1875	0.1801	0.1728	0.1656	0.1585
1070	0.1516	0.1447	0.1380	0.1316	0.1255
1080	0.1195	0.1136	0.1077	0.1019	0.0962
1090	0.0905	0.0849	0.0793	0.0738	0.0683
1100	0.0629	0.0555	0.0486	0.0421	0.0360
1110	0.0302	0.0249	0.0199	0.0154	0.0113
1120	0.0075	0.0042	0.0013	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BB4 RESPONSIVITY, CAMERA FCIF

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.248887E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0002	0.0043	0.0094
370	0.0156	0.0227	0.0309	0.0447	0.0630
380	0.0807	0.0979	0.1146	0.1307	0.1463
390	0.1615	0.1761	0.1902	0.2039	0.2170
400	0.2297	0.2394	0.2491	0.2587	0.2683
410	0.2779	0.2874	0.2970	0.3065	0.3160
420	0.3255	0.3351	0.3446	0.3552	0.3667
430	0.3779	0.3888	0.3955	0.4098	0.4199
440	0.4296	0.4389	0.4480	0.4567	0.4650
450	0.4729	0.4781	0.4832	0.4885	0.4937
460	0.4998	0.5040	0.5051	0.5142	0.5193
470	0.5244	0.5295	0.5346	0.5399	0.5454
480	0.5508	0.5561	0.5614	0.5665	0.5716
490	0.5766	0.5816	0.5864	0.5912	0.5959
500	0.6004	0.6040	0.6077	0.6114	0.6151
510	0.6189	0.6227	0.6266	0.6306	0.6346
520	0.6386	0.6427	0.6469	0.6513	0.6560
530	0.6606	0.6653	0.6659	0.6745	0.6790
540	0.6836	0.6881	0.6926	0.6970	0.7015
550	0.7059	0.7101	0.7143	0.7185	0.7227
560	0.7269	0.7311	0.7352	0.7353	0.7434
570	0.7475	0.7516	0.7557	0.7603	0.7654
580	0.7703	0.7750	0.7755	0.7837	0.7878
590	0.7916	0.7952	0.7965	0.8017	0.8046
600	0.8073	0.8008	0.8102	0.8117	0.8130
610	0.8143	0.8156	0.8168	0.8180	0.8191
620	0.8202	0.8213	0.8223	0.8234	0.8246
630	0.8257	0.8267	0.8276	0.8284	0.8291
640	0.8297	0.8301	0.8305	0.8308	0.8309
650	0.8310	0.8305	0.8301	0.8295	0.8290
660	0.8284	0.8278	0.8271	0.8264	0.8257
670	0.8250	0.8242	0.8234	0.8220	0.8203
680	0.8187	0.8172	0.8158	0.8146	0.8135
690	0.8126	0.8118	0.8111	0.8105	0.8101
700	0.8098	0.8107	0.8115	0.8123	0.8130
710	0.8137	0.8143	0.8145	0.8154	0.8159
720	0.8163	0.8167	0.8170	0.8172	0.8171
730	0.8170	0.8170	0.8170	0.8169	0.8169
740	0.8169	0.8170	0.8170	0.8171	0.8171
750	0.8172	0.8178	0.8182	0.8186	0.8190

BB4, RESPONSIVITY, CAMERA DIODE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.8192	0.8195	0.8156	0.8197	0.8198
770	0.8197	0.8197	0.8155	0.8196	0.8200
780	0.8201	0.8201	0.8159	0.8195	0.8189
790	0.8181	0.8172	0.8161	0.8149	0.8135
800	0.8119	0.8084	0.8050	0.8018	0.7988
810	0.7959	0.7931	0.7906	0.7881	0.7859
820	0.7838	0.7818	0.7800	0.7779	0.7756
830	0.7735	0.7719	0.7704	0.7693	0.7685
840	0.7680	0.7678	0.7679	0.7684	0.7691
850	0.7701	0.7751	0.7758	0.7842	0.7882
860	0.7920	0.7954	0.7984	0.8011	0.8035
870	0.8055	0.8072	0.8065	0.8091	0.8089
880	0.8095	0.8080	0.8072	0.8062	0.8050
890	0.8036	0.8019	0.8001	0.7981	0.7959
900	0.7936	0.7900	0.7864	0.7827	0.7791
910	0.7753	0.7716	0.7678	0.7640	0.7602
920	0.7563	0.7524	0.7484	0.7456	0.7435
930	0.7411	0.7381	0.7348	0.7310	0.7269
940	0.7222	0.7171	0.7116	0.7056	0.6993
950	0.6924	0.6827	0.6730	0.6633	0.6535
960	0.6437	0.6338	0.6239	0.6141	0.6042
970	0.5943	0.5843	0.5744	0.5647	0.5553
980	0.5458	0.5362	0.5266	0.5169	0.5072
990	0.4974	0.4876	0.4777	0.4678	0.4577
1000	0.4476	0.4368	0.4259	0.4150	0.4041
1010	0.3933	0.3824	0.3716	0.3608	0.3501
1020	0.3394	0.3288	0.3163	0.3071	0.2955
1030	0.2843	0.2734	0.2625	0.2527	0.2429
1040	0.2333	0.2241	0.2152	0.2066	0.1983
1050	0.1902	0.1836	0.1770	0.1705	0.1640
1060	0.1576	0.1513	0.1451	0.1389	0.1328
1070	0.1269	0.1210	0.1152	0.1096	0.1043
1080	0.0990	0.0937	0.0866	0.0835	0.0786
1090	0.0737	0.0689	0.0641	0.0594	0.0548
1100	0.0503	0.0445	0.0389	0.0337	0.0288
1110	0.0242	0.0199	0.0159	0.0123	0.0090
1120	0.0060	0.0034	0.0011	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BLUE RESPONSIVITY, CAMERA ECIP

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0000	0.0000
370	0.0000	0.0000	0.0471	0.1852	0.3646
380	0.5291	0.6789	0.8141	0.9348	1.0410
390	1.1335	1.1483	1.1758	1.2283	1.2937
400	1.3757	1.5024	1.6324	1.7657	1.9026
410	2.0423	2.2499	2.4258	2.5811	2.7059
420	2.8051	2.8293	2.8845	2.9725	3.0950
430	3.2513	3.5938	3.6955	4.1691	4.4005
440	4.5931	4.6706	4.7452	4.8169	4.8857
450	4.9516	4.9950	5.0410	5.0896	5.1408
460	5.1946	5.2360	5.2877	5.3495	5.4217
470	5.5035	5.6217	5.7158	5.8001	5.8605
480	5.8800	5.8101	5.7214	5.6138	5.4875
490	5.3425	5.3315	5.2295	5.0271	4.7290
500	4.3324	3.4255	2.6254	1.9440	1.3669
510	0.9004	0.7115	0.5459	0.4137	0.3037
520	0.2199	0.1796	0.1431	0.1209	0.1104
530	0.1005	0.0911	0.0822	0.0738	0.0660
540	0.0587	0.0519	0.0457	0.0399	0.0348
550	0.0302	0.0283	0.0266	0.0250	0.0236
560	0.0223	0.0212	0.0203	0.0195	0.0189
570	0.0184	0.0180	0.0175	0.0175	0.0171
580	0.0170	0.0171	0.0174	0.0180	0.0189
590	0.0209	0.0213	0.0230	0.0248	0.0269
600	0.0294	0.0167	0.0065	0.0000	0.0000
610	0.0000	0.0000	0.0018	0.0094	0.0201
620	0.0335	0.0499	0.0651	0.1037	0.1506
630	0.1961	0.2402	0.2829	0.3241	0.3639
640	0.4022	0.4391	0.4746	0.5085	0.5412
650	0.5728	0.6322	0.6050	0.7312	0.7706
660	0.8036	0.8298	0.8456	0.8626	0.8691
670	0.8694	0.8630	0.8504	0.8004	0.7213
680	0.6465	0.5761	0.5058	0.4478	0.3897
690	0.3360	0.2862	0.2405	0.1987	0.1609
700	0.1270	0.1148	0.1032	0.0924	0.0822
710	0.0728	0.0640	0.0555	0.0485	0.0418
720	0.0358	0.0304	0.0257	0.0238	0.0242
730	0.0246	0.0248	0.0250	0.0250	0.0250
740	0.0249	0.0246	0.0243	0.0239	0.0234
750	0.0229	0.0193	0.0162	0.0135	0.0112

BLUE RESPONSIVITY, CAMERA FC18

CAMERA DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
760	0.0094	0.0079	0.0065	0.0063	0.0060
770	0.0062	0.0068	0.0078	0.0122	0.0193
780	0.0259	0.0316	0.0367	0.0412	0.0451
790	0.0482	0.0508	0.0527	0.0540	0.0546
800	0.0548	0.0491	0.0437	0.0386	0.0339
810	0.0295	0.0253	0.0215	0.0179	0.0147
820	0.0117	0.0091	0.0067	0.0054	0.0049
830	0.0044	0.0040	0.0036	0.0032	0.0029
840	0.0026	0.0023	0.0020	0.0018	0.0016
850	0.0014	0.0007	0.0002	0.0000	0.0000
860	0.0000	0.0000	0.0000	0.0000	0.0000
870	0.0000	0.0003	0.0010	0.0026	0.0050
880	0.0072	0.0093	0.0111	0.0128	0.0144
890	0.0157	0.0169	0.0179	0.0187	0.0194
900	0.0199	0.0185	0.0172	0.0160	0.0150
910	0.0141	0.0133	0.0127	0.0122	0.0119
920	0.0116	0.0116	0.0116	0.0111	0.0102
930	0.0096	0.0094	0.0096	0.0102	0.0112
940	0.0126	0.0144	0.0166	0.0192	0.0223
950	0.0256	0.0359	0.0456	0.0545	0.0627
960	0.0704	0.0772	0.0833	0.0887	0.0934
970	0.0973	0.1005	0.1025	0.1016	0.0972
980	0.0931	0.0893	0.0857	0.0824	0.0793
990	0.0765	0.0740	0.0717	0.0697	0.0679
1000	0.0664	0.0623	0.0565	0.0562	0.0544
1010	0.0533	0.0530	0.0534	0.0546	0.0566
1020	0.0593	0.0629	0.0673	0.0655	0.0598
1030	0.0568	0.0568	0.0662	0.0662	0.0753
1040	0.0875	0.1025	0.1208	0.1418	0.1657
1050	0.1936	0.2725	0.3466	0.4156	0.4791
1060	0.5375	0.5903	0.6379	0.6810	0.7176
1070	0.7484	0.7739	0.7937	0.7952	0.7826
1080	0.7694	0.7524	0.7349	0.7155	0.6945
1090	0.6718	0.6474	0.6214	0.5936	0.5642
1100	0.5330	0.4709	0.4120	0.3565	0.3044
1110	0.2560	0.2107	0.1688	0.1307	0.0956
1120	0.0640	0.0358	0.0112	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

GREEN RESPONSIVITY, CAMERA FC18

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0036	0.0070	0.0103	0.0133
360	0.0162	0.0188	0.0213	0.0236	0.0257
370	0.0276	0.0293	0.0308	0.0316	0.0319
380	0.0322	0.0324	0.0326	0.0328	0.0329
390	0.0330	0.0331	0.0331	0.0331	0.0331
400	0.0330	0.0321	0.0313	0.0306	0.0300
410	0.0295	0.0291	0.0289	0.0287	0.0286
420	0.0287	0.0289	0.0252	0.0290	0.0285
430	0.0282	0.0283	0.0287	0.0295	0.0305
440	0.0319	0.0336	0.0357	0.0381	0.0408
450	0.0439	0.0449	0.0466	0.0490	0.0523
460	0.0563	0.0610	0.0665	0.0728	0.0799
470	0.0878	0.0964	0.1058	0.1105	0.1186
480	0.1403	0.0856	0.0894	0.1509	0.2682
490	0.4459	0.8494	1.2296	1.5843	1.9124
500	2.2156	2.4723	2.7117	2.9337	3.1382
510	3.3271	3.4054	3.5118	3.6469	3.8104
520	4.0012	4.2390	4.4820	4.7243	4.9781
530	5.2513	5.7224	6.1299	6.4726	6.7526
540	6.9684	6.9881	7.0079	7.0278	7.0477
550	7.0732	7.2533	7.3518	7.3678	7.3015
560	7.1422	7.0969	6.8777	6.4850	5.9203
570	5.1935	3.9788	2.5953	2.3025	1.8090
580	1.4093	1.2167	1.0521	0.9154	0.8069
590	0.7244	0.7537	0.7701	0.7735	0.7639
600	0.7417	0.6801	0.6187	0.5576	0.4968
610	0.4365	0.3568	0.2871	0.2276	0.1777
620	0.1376	0.1133	0.0914	0.0778	0.0709
630	0.0644	0.0585	0.0530	0.0479	0.0433
640	0.0392	0.0355	0.0323	0.0295	0.0272
650	0.0253	0.0271	0.0287	0.0303	0.0317
660	0.0330	0.0342	0.0352	0.0362	0.0370
670	0.0378	0.0384	0.0369	0.0391	0.0391
680	0.0391	0.0390	0.0389	0.0387	0.0384
690	0.0381	0.0377	0.0373	0.0367	0.0362
700	0.0356	0.0345	0.0335	0.0324	0.0314
710	0.0304	0.0294	0.0284	0.0274	0.0265
720	0.0255	0.0246	0.0236	0.0221	0.0202
730	0.0184	0.0169	0.0156	0.0145	0.0136
740	0.0129	0.0124	0.0121	0.0120	0.0122
750	0.0125	0.0140	0.0155	0.0170	0.0185

GREEN RESPONSIVITY, CAMERA FC1B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0201	0.0217	0.0234	0.0250	0.0267
770	0.0284	0.0301	0.0319	0.0353	0.0399
780	0.0440	0.0476	0.0506	0.0531	0.0551
790	0.0566	0.0575	0.0579	0.0579	0.0573
800	0.0563	0.0499	0.0435	0.0382	0.0330
810	0.0281	0.0235	0.0194	0.0155	0.0121
820	0.0089	0.0062	0.0037	0.0027	0.0026
830	0.0026	0.0026	0.0026	0.0026	0.0026
840	0.0025	0.0025	0.0025	0.0025	0.0025
850	0.0025	0.0024	0.0023	0.0022	0.0021
860	0.0021	0.0020	0.0021	0.0021	0.0021
870	0.0022	0.0023	0.0024	0.0022	0.0017
880	0.0014	0.0012	0.0012	0.0013	0.0015
890	0.0019	0.0024	0.0031	0.0039	0.0049
900	0.0060	0.0093	0.0124	0.0153	0.0180
910	0.0204	0.0227	0.0248	0.0266	0.0283
920	0.0297	0.0309	0.0320	0.0320	0.0313
930	0.0307	0.0300	0.0294	0.0288	0.0282
940	0.0277	0.0272	0.0267	0.0263	0.0259
950	0.0255	0.0228	0.0204	0.0185	0.0171
960	0.0161	0.0156	0.0155	0.0159	0.0167
970	0.0181	0.0198	0.0221	0.0280	0.0367
980	0.0449	0.0524	0.0553	0.0656	0.0714
990	0.0765	0.0811	0.0851	0.0884	0.0912
1000	0.0934	0.0904	0.0877	0.0851	0.0827
1010	0.0805	0.0785	0.0766	0.0750	0.0736
1020	0.0724	0.0714	0.0706	0.0666	0.0605
1030	0.0555	0.0520	0.0458	0.0489	0.0492
1040	0.0509	0.0538	0.0581	0.0636	0.0704
1050	0.0784	0.0924	0.1070	0.1221	0.1379
1060	0.1542	0.1711	0.1886	0.2067	0.2252
1070	0.2444	0.2642	0.2843	0.3741	0.3780
1080	0.4260	0.4683	0.5049	0.5347	0.5599
1090	0.5793	0.5931	0.6012	0.6036	0.6004
1100	0.5911	0.5222	0.4565	0.3956	0.3379
1110	0.2841	0.2340	0.1877	0.1455	0.1068
1120	0.0718	0.0407	0.0133	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0003				

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RED RESPONSIVITY, CAMERA ECIP

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.336640E-06	0.0008	0.0015	0.0023	0.0031
360	0.0039	0.0048	0.0056	0.0065	0.0074
370	0.0083	0.0092	0.0101	0.0114	0.0130
380	0.0144	0.0158	0.0171	0.0182	0.0193
390	0.0203	0.0211	0.0219	0.0225	0.0231
400	0.0236	0.0235	0.0234	0.0233	0.0231
410	0.0230	0.0228	0.0226	0.0223	0.0221
420	0.0218	0.0215	0.0212	0.0209	0.0206
430	0.0202	0.0198	0.0194	0.0189	0.0184
440	0.0179	0.0173	0.0168	0.0162	0.0155
450	0.0149	0.0136	0.0124	0.0112	0.0102
460	0.0092	0.0083	0.0075	0.0068	0.0062
470	0.0056	0.0052	0.0048	0.0048	0.0052
480	0.0055	0.0059	0.0062	0.0065	0.0067
490	0.0070	0.0073	0.0075	0.0077	0.0079
500	0.0081	0.0081	0.0081	0.0082	0.0082
510	0.0083	0.0083	0.0084	0.0084	0.0085
520	0.0085	0.0085	0.0086	0.0082	0.0074
530	0.0068	0.0064	0.0061	0.0059	0.0059
540	0.0061	0.0064	0.0068	0.0074	0.0081
550	0.0090	0.0063	0.0046	0.0038	0.0041
560	0.0053	0.0075	0.0107	0.0148	0.0199
570	0.0260	0.0321	0.0405	0.0481	0.0589
580	0.0786	0.0964	0.1266	0.1688	0.2230
590	0.2898	0.3591	0.4439	0.5464	0.6652
600	0.7994	0.9817	1.1646	1.3478	1.5315
610	1.7145	1.9413	2.1471	2.3334	2.4976
620	2.6420	2.7700	2.8708	2.9395	2.9844
630	3.0100	2.9795	2.9450	2.9066	2.8645
640	2.8138	2.7345	2.6630	2.6061	2.5620
650	2.5314	2.5374	2.5455	2.5559	2.5682
660	2.5829	2.6144	2.6404	2.6612	2.6768
670	2.6864	2.6813	2.6846	2.6982	2.7185
680	2.7421	2.8239	2.8810	2.9156	2.9270
690	2.9179	2.8471	2.7727	2.6547	2.6131
700	2.5276	2.4217	2.3212	2.2261	2.1362
710	2.0500	2.0335	1.9914	1.9208	1.8260
720	1.7068	1.5420	1.3751	1.1941	1.0167
730	0.8615	0.7552	0.6556	0.5765	0.5038
740	0.4430	0.4114	0.3821	0.3550	0.3302
750	0.3073	0.3008	0.2932	0.2847	0.2752

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RED RESPONSIVITY, CAMERA FC1E

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2646	0.2532	0.2407	0.2273	0.2129
770	0.1977	0.1795	0.1630	0.1528	0.1477
780	0.1427	0.1377	0.1327	0.1278	0.1228
790	0.1179	0.1130	0.1082	0.1034	0.0985
800	0.0937	0.0872	0.0811	0.0752	0.0697
810	0.0644	0.0595	0.0549	0.0506	0.0466
820	0.0429	0.0395	0.0364	0.0340	0.0321
830	0.0304	0.0288	0.0274	0.0262	0.0251
840	0.0241	0.0233	0.0227	0.0222	0.0219
850	0.0217	0.0239	0.0259	0.0277	0.0292
860	0.0305	0.0316	0.0324	0.0329	0.0333
870	0.0333	0.0331	0.0327	0.0306	0.0273
880	0.0242	0.0213	0.0185	0.0160	0.0136
890	0.0115	0.0095	0.0077	0.0061	0.0046
900	0.0034	0.0034	0.0033	0.0033	0.0033
910	0.0033	0.0032	0.0032	0.0032	0.0032
920	0.0032	0.0032	0.0032	0.0032	0.0032
930	0.0032	0.0032	0.0032	0.0032	0.0032
940	0.0031	0.0031	0.0031	0.0031	0.0031
950	0.0031	0.0031	0.0031	0.0030	0.0030
960	0.0030	0.0030	0.0029	0.0029	0.0029
970	0.0029	0.0029	0.0029	0.0027	0.0024
980	0.0022	0.0020	0.0019	0.0018	0.0018
990	0.0019	0.0020	0.0021	0.0023	0.0026
1000	0.0029	0.0040	0.0051	0.0061	0.0071
1010	0.0079	0.0086	0.0093	0.0099	0.0104
1020	0.0108	0.0111	0.0113	0.0111	0.0106
1030	0.0101	0.0096	0.0091	0.0087	0.0082
1040	0.0078	0.0073	0.0069	0.0065	0.0061
1050	0.0058	0.0053	0.0049	0.0045	0.0041
1060	0.0037	0.0034	0.0031	0.0028	0.0025
1070	0.0023	0.0021	0.0019	0.0018	0.0019
1080	0.0019	0.0020	0.0020	0.0020	0.0020
1090	0.0020	0.0020	0.0020	0.0019	0.0019
1100	0.0018	0.0016	0.0014	0.0012	0.0010
1110	0.0009	0.0007	0.0006	0.0004	0.0003
1120	0.0002	0.0001	.367504E-04	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

TRI RESPONSIVITY, CAMERA FC10

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.520809E-06	0.0009	0.0018	0.0027	0.0037
360	0.0046	0.0056	0.0066	0.0077	0.0087
370	0.0098	0.0109	0.0120	0.0138	0.0161
380	0.0181	0.0200	0.0217	0.0232	0.0245
390	0.0257	0.0266	0.0273	0.0279	0.0283
400	0.0285	0.0270	0.0256	0.0242	0.0229
410	0.0217	0.0205	0.0194	0.0184	0.0174
420	0.0165	0.0156	0.0148	0.0142	0.0139
430	0.0136	0.0132	0.0129	0.0125	0.0122
440	0.0118	0.0115	0.0111	0.0108	0.0105
450	0.0101	0.0096	0.0091	0.0086	0.0082
460	0.0078	0.0075	0.0072	0.0070	0.0068
470	0.0066	0.0065	0.0064	0.0067	0.0071
480	0.0075	0.0079	0.0082	0.0085	0.0088
490	0.0090	0.0092	0.0094	0.0095	0.0096
500	0.0096	0.0092	0.0088	0.0084	0.0081
510	0.0078	0.0075	0.0073	0.0071	0.0070
520	0.0069	0.0068	0.0068	0.0070	0.0073
530	0.0076	0.0079	0.0082	0.0085	0.0087
540	0.0090	0.0092	0.0094	0.0096	0.0097
550	0.0099	0.0095	0.0092	0.0089	0.0088
560	0.0087	0.0087	0.0087	0.0089	0.0091
570	0.0093	0.0097	0.0101	0.0111	0.0124
580	0.0137	0.0149	0.0161	0.0171	0.0181
590	0.0189	0.0197	0.0204	0.0211	0.0216
600	0.0221	0.0223	0.0225	0.0226	0.0227
610	0.0227	0.0227	0.0226	0.0224	0.0221
620	0.0218	0.0215	0.0211	0.0203	0.0193
630	0.0183	0.0173	0.0164	0.0155	0.0147
640	0.0139	0.0131	0.0124	0.0117	0.0110
650	0.0104	0.0096	0.0090	0.0084	0.0078
660	0.0073	0.0069	0.0065	0.0062	0.0059
670	0.0057	0.0055	0.0054	0.0054	0.0057
680	0.0059	0.0062	0.0064	0.0067	0.0069
690	0.0072	0.0074	0.0077	0.0079	0.0082
700	0.0084	0.0083	0.0082	0.0082	0.0083
710	0.0094	0.0086	0.0089	0.0092	0.0096
720	0.0101	0.0106	0.0112	0.0097	0.0063
730	0.0039	0.0022	0.0015	0.0015	0.0024
740	0.0041	0.0067	0.0059	0.0141	0.0190
750	0.0248	0.0222	0.0218	0.0239	0.0285

IRI RESPONSIVITY, CAMERA FCIE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0354	0.0446	0.0562	0.0702	0.0864
770	0.1050	0.1257	0.1468	0.1378	0.1020
780	0.0811	0.0750	0.0825	0.1045	0.1398
790	0.1894	0.2530	0.2256	0.4201	0.5243
800	0.6396	0.7748	0.5160	1.0550	1.1985
810	1.3563	1.5293	1.7184	1.9281	2.1560
820	2.3933	2.6385	2.8524	3.2132	3.5649
830	3.3675	4.1208	4.3302	4.4880	4.5983
840	4.6660	4.6968	4.6858	4.6260	4.5295
850	4.4229	4.3005	4.1532	4.1021	4.0251
860	3.9690	3.9341	3.9199	3.9344	3.9712
870	4.0246	4.0959	4.1833	4.3258	4.4954
880	4.6424	4.7669	4.8650	5.0059	5.1205
890	5.1752	5.1698	5.1026	4.9505	4.7554
900	4.5234	4.2215	3.9310	3.5873	3.2208
910	2.8804	2.5653	2.2772	2.0240	1.8000
920	1.5936	1.4059	1.2319	1.0999	0.9841
930	0.8782	0.7822	0.6554	0.6298	0.5832
940	0.5388	0.4967	0.4568	0.4194	0.3843
950	0.3516	0.3311	0.3115	0.2926	0.2744
960	0.2572	0.2408	0.2251	0.2104	0.1964
970	0.1834	0.1713	0.1600	0.1516	0.1458
980	0.1402	0.1349	0.1298	0.1249	0.1202
990	0.1158	0.1116	0.1076	0.1039	0.1003
1000	0.0970	0.0947	0.0925	0.0903	0.0882
1010	0.0862	0.0843	0.0825	0.0808	0.0792
1020	0.0776	0.0762	0.0749	0.0736	0.0725
1030	0.0714	0.0705	0.0656	0.0689	0.0683
1040	0.0678	0.0674	0.0671	0.0669	0.0668
1050	0.0668	0.0674	0.0660	0.0687	0.0693
1060	0.0700	0.0708	0.0715	0.0723	0.0732
1070	0.0740	0.0749	0.0759	0.0789	0.0836
1080	0.0876	0.0909	0.0935	0.0955	0.0967
1090	0.0973	0.0972	0.0965	0.0951	0.0931
1100	0.0903	0.0798	0.0698	0.0604	0.0517
1110	0.0434	0.0358	0.0267	0.0222	0.0163
1120	0.0109	0.0062	0.0020	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0001				

IRI RESPONSIVITY, CAMERA FCIF

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0025	0.0049	0.0073	0.0096
360	0.0119	0.0142	0.0164	0.0185	0.0206
370	0.0227	0.0247	0.0267	0.0290	0.0315
380	0.0338	0.0360	0.0380	0.0398	0.0415
390	0.0430	0.0443	0.0455	0.0465	0.0474
400	0.0480	0.0472	0.0465	0.0458	0.0452
410	0.0446	0.0441	0.0437	0.0433	0.0430
420	0.0428	0.0426	0.0424	0.0423	0.0421
430	0.0421	0.0421	0.0422	0.0424	0.0427
440	0.0432	0.0437	0.0443	0.0450	0.0458
450	0.0468	0.0406	0.0357	0.0321	0.0300
460	0.0292	0.0297	0.0317	0.0350	0.0397
470	0.0459	0.0534	0.0623	0.0756	0.0926
480	0.1101	0.1282	0.1467	0.1657	0.1852
490	0.2052	0.2255	0.2465	0.2679	0.2897
500	0.3119	0.3661	0.4152	0.4592	0.4980
510	0.5318	0.5604	0.5835	0.6024	0.6157
520	0.6239	0.6269	0.6248	0.5950	0.5427
530	0.4928	0.4453	0.4003	0.3577	0.3177
540	0.2800	0.2449	0.2123	0.1823	0.1548
550	0.1298	0.1189	0.1066	0.0988	0.0896
560	0.0810	0.0728	0.0652	0.0582	0.0517
570	0.0457	0.0403	0.0353	0.0323	0.0307
580	0.0293	0.0279	0.0266	0.0254	0.0242
590	0.0232	0.0222	0.0214	0.0206	0.0199
600	0.0193	0.0193	0.0193	0.0193	0.0193
610	0.0192	0.0192	0.0192	0.0191	0.0191
620	0.0190	0.0189	0.0185	0.0186	0.0182
630	0.0178	0.0175	0.0172	0.0170	0.0169
640	0.0168	0.0168	0.0168	0.0169	0.0171
650	0.0173	0.0179	0.0186	0.0192	0.0198
660	0.0204	0.0210	0.0216	0.0221	0.0227
670	0.0233	0.0238	0.0244	0.0242	0.0236
680	0.0232	0.0230	0.0231	0.0233	0.0237
690	0.0244	0.0252	0.0262	0.0275	0.0289
700	0.0306	0.0317	0.0332	0.0350	0.0371
710	0.0395	0.0422	0.0453	0.0486	0.0522
720	0.0561	0.0604	0.0649	0.0720	0.0811
730	0.0898	0.0979	0.1055	0.1127	0.1193
740	0.1255	0.1312	0.1365	0.1412	0.1455
750	0.1492	0.1544	0.1589	0.1626	0.1655

IR2 RESPONSIVITY, CAMERA FC1B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.1676	0.1689	0.1655	0.1692	0.1683
770	0.1665	0.1640	0.1608	0.1529	0.1412
780	0.1300	0.1196	0.1058	0.1007	0.0922
790	0.0843	0.0771	0.0705	0.0644	0.0591
800	0.0542	0.0519	0.0455	0.0481	0.0466
810	0.0452	0.0441	0.0433	0.0426	0.0422
820	0.0420	0.0420	0.0422	0.0416	0.0403
830	0.0396	0.0395	0.0400	0.0411	0.0427
840	0.0449	0.0477	0.0510	0.0550	0.0594
850	0.0644	0.0427	0.0259	0.0146	0.0087
860	0.0080	0.0130	0.0237	0.0400	0.0618
870	0.0896	0.1231	0.1621	0.1445	0.0823
880	0.0480	0.0405	0.0597	0.1065	0.1788
890	0.2787	0.4051	0.5561	0.7367	0.9431
900	1.1679	1.3828	1.6867	2.0672	2.5373
910	3.1275	3.9466	4.7455	5.6331	6.5582
920	7.3569	8.0126	8.5592	8.9693	9.2477
930	9.4488	9.4821	9.5055	9.5107	9.5020
940	9.4934	9.4851	9.4770	9.5083	9.5169
950	9.4470	9.2795	9.0409	8.6801	8.2451
960	7.7534	7.1833	6.6024	5.9332	5.2297
970	4.5842	3.9983	3.4703	2.9981	2.5882
980	2.2364	1.9676	1.7278	1.5261	1.3544
990	1.2034	1.0686	0.9521	0.8598	0.7810
1000	0.7072	0.6638	0.6220	0.5818	0.5432
1010	0.5066	0.4715	0.4384	0.4070	0.3776
1020	0.3499	0.3243	0.3006	0.2828	0.2701
1030	0.2582	0.2468	0.2361	0.2260	0.2165
1040	0.2076	0.1995	0.1919	0.1848	0.1784
1050	0.1725	0.1696	0.1668	0.1642	0.1618
1060	0.1596	0.1575	0.1556	0.1539	0.1523
1070	0.1510	0.1498	0.1488	0.1516	0.1572
1080	0.1618	0.1654	0.1681	0.1697	0.1702
1090	0.1698	0.1684	0.1660	0.1625	0.1582
1100	0.1528	0.1350	0.1161	0.1022	0.0873
1110	0.0733	0.0605	0.0464	0.0375	0.0274
1120	0.0184	0.0104	0.0032	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IR3 RESPONSIVITY, CAMERA FCIE

CAMERA DICDE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0050	0.0100	0.0150	0.0200
360	0.0250	0.0300	0.0350	0.0400	0.0450
370	0.0500	0.0550	0.0599	0.0666	0.0745
380	0.0818	0.0886	0.0948	0.1004	0.1055
390	0.1100	0.1139	0.1174	0.1202	0.1225
400	0.1243	0.1192	0.1147	0.1107	0.1072
410	0.1043	0.1018	0.0999	0.0985	0.0977
420	0.0973	0.0975	0.0983	0.0998	0.1021
430	0.1048	0.1081	0.1118	0.1161	0.1209
440	0.1262	0.1320	0.1384	0.1453	0.1527
450	0.1606	0.1743	0.1875	0.2003	0.2128
460	0.2248	0.2364	0.2476	0.2584	0.2688
470	0.2788	0.2885	0.2977	0.3095	0.3235
480	0.3361	0.3472	0.3569	0.3651	0.3719
490	0.3771	0.3809	0.3832	0.3835	0.3831
500	0.3808	0.3647	0.3453	0.3344	0.3201
510	0.3064	0.2933	0.2808	0.2689	0.2576
520	0.2469	0.2367	0.2272	0.2189	0.2118
530	0.2049	0.1985	0.1924	0.1866	0.1812
540	0.1762	0.1715	0.1672	0.1633	0.1597
550	0.1565	0.1544	0.1526	0.1510	0.1497
560	0.1485	0.1477	0.1470	0.1466	0.1464
570	0.1464	0.1467	0.1472	0.1482	0.1496
580	0.1512	0.1529	0.1547	0.1567	0.1588
590	0.1611	0.1635	0.1661	0.1688	0.1716
600	0.1746	0.1773	0.1801	0.1832	0.1865
610	0.1900	0.1938	0.1977	0.2019	0.2063
620	0.2110	0.2158	0.2209	0.2262	0.2318
630	0.2375	0.2435	0.2497	0.2560	0.2626
640	0.2694	0.2763	0.2834	0.2908	0.2983
650	0.3060	0.3131	0.3205	0.3283	0.3364
660	0.3447	0.3534	0.3623	0.3716	0.3812
670	0.3910	0.4011	0.4115	0.4208	0.4295
680	0.4388	0.4488	0.4556	0.4710	0.4832
690	0.4960	0.5096	0.5238	0.5387	0.5543
700	0.5706	0.6164	0.6577	0.6946	0.7272
710	0.7553	0.7792	0.7967	0.8140	0.8250
720	0.8317	0.8343	0.8327	0.8146	0.7832
730	0.7519	0.7207	0.6856	0.6586	0.6277
740	0.5969	0.5662	0.5356	0.5051	0.4747
750	0.4445	0.4022	0.3622	0.3244	0.2888

IR1 RESPONSIVITY, CAMERA DIODE

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2554	0.2242	0.1952	0.1684	0.1437
770	0.1212	0.1010	0.0828	0.0720	0.0676
780	0.0634	0.0594	0.0557	0.0522	0.0489
790	0.0459	0.0431	0.0405	0.0382	0.0360
800	0.0341	0.0330	0.0320	0.0310	0.0302
810	0.0295	0.0290	0.0285	0.0281	0.0279
820	0.0277	0.0277	0.0278	0.0277	0.0277
830	0.0277	0.0280	0.0284	0.0290	0.0298
840	0.0308	0.0319	0.0332	0.0347	0.0364
850	0.0383	0.0375	0.0374	0.0379	0.0392
860	0.0411	0.0438	0.0471	0.0512	0.0560
870	0.0616	0.0679	0.0749	0.0746	0.0688
880	0.0667	0.0678	0.0723	0.0802	0.0911
890	0.1056	0.1236	0.1447	0.1693	0.1970
900	0.2293	0.2004	0.1861	0.1863	0.2010
910	0.2305	0.2726	0.3316	0.4044	0.4911
920	0.5951	0.7132	0.8444	1.0495	1.3122
930	1.5729	1.8310	2.0867	2.3396	2.5897
940	2.8373	3.0817	3.3221	3.5617	3.7968
950	4.0284	4.3526	4.6447	4.9044	5.1303
960	5.3232	5.4827	5.6077	5.6821	5.7159
970	5.7299	5.7254	5.7023	5.6376	5.5451
980	5.4515	5.3570	5.2617	5.1609	5.0575
990	4.9572	4.8597	4.7649	4.6789	4.5934
1000	4.4983	4.3937	4.2884	4.1821	4.0753
1010	3.9600	3.8626	3.7568	3.6495	3.5428
1020	3.4379	3.3354	3.2352	3.1376	3.0415
1030	2.9452	2.8405	2.7517	2.6513	2.5493
1040	2.4497	2.3524	2.2572	2.1641	2.0731
1050	1.9856	1.9016	1.8224	1.7467	1.6760
1060	1.6083	1.5430	1.4805	1.4239	1.3713
1070	1.3189	1.2666	1.2145	1.1626	1.1105
1080	1.0586	1.0069	0.9554	0.9037	0.8522
1090	0.8011	0.7503	0.6955	0.6501	0.6005
1100	0.5508	0.5009	0.4510	0.3979	0.3442
1110	0.2933	0.2449	0.1956	0.1564	0.1143
1120	0.0774	0.0434	0.0144	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

SURVEY RESPONSIVITY, CAMERA FC1P

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.265406E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0021	0.0068	0.0126
370	0.0195	0.0275	0.0366	0.0524	0.0735
380	0.0939	0.1135	0.1322	0.1502	0.1674
390	0.1838	0.1995	0.2144	0.2286	0.2420
400	0.2547	0.2654	0.2759	0.2863	0.2966
410	0.3067	0.3161	0.3255	0.3351	0.3448
420	0.3547	0.3647	0.3749	0.3871	0.4010
430	0.4146	0.4277	0.4405	0.4528	0.4647
440	0.4761	0.4870	0.4974	0.5073	0.5168
450	0.5256	0.5310	0.5362	0.5414	0.5466
460	0.5517	0.5568	0.5617	0.5667	0.5716
470	0.5764	0.5812	0.5859	0.5905	0.5950
480	0.5996	0.6044	0.6093	0.6144	0.6196
490	0.6250	0.6312	0.6372	0.6430	0.6486
500	0.6539	0.6577	0.6617	0.6658	0.6701
510	0.6745	0.6799	0.6852	0.6904	0.6956
520	0.7008	0.7059	0.7110	0.7160	0.7209
530	0.7258	0.7307	0.7355	0.7404	0.7453
540	0.7501	0.7549	0.7598	0.7646	0.7693
550	0.7741	0.7793	0.7844	0.7893	0.7941
560	0.7986	0.8031	0.8073	0.8114	0.8154
570	0.8192	0.8225	0.8261	0.8304	0.8353
580	0.8401	0.8449	0.8496	0.8542	0.8588
590	0.8633	0.8683	0.8730	0.8773	0.8813
600	0.8849	0.8859	0.8870	0.8890	0.8892
610	0.8903	0.8915	0.8928	0.8940	0.8954
620	0.8967	0.8981	0.8995	0.9016	0.9042
630	0.9066	0.9089	0.9109	0.9128	0.9145
640	0.9159	0.9172	0.9183	0.9193	0.9200
650	0.9205	0.9199	0.9192	0.9185	0.9178
660	0.9171	0.9164	0.9157	0.9150	0.9143
670	0.9136	0.9129	0.9121	0.9108	0.9091
680	0.9076	0.9063	0.9051	0.9041	0.9032
690.	0.9026	0.9021	0.9017	0.9016	0.9016
700	0.9017	0.9038	0.9057	0.9075	0.9092
710	0.9106	0.9120	0.9132	0.9142	0.9151
720	0.9159	0.9165	0.9170	0.9165	0.9153
730	0.9141	0.9132	0.9123	0.9116	0.9111
740	0.9107	0.9104	0.9102	0.9102	0.9104
750	0.9106	0.9118	0.9125	0.9141	0.9152

SURVEY RESPONSIVITY, CAMERA FC1R

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9162	0.9173	0.9183	0.9192	0.9202
770	0.9211	0.9221	0.9229	0.9234	0.9236
780	0.9237	0.9237	0.9235	0.9233	0.9229
790	0.9224	0.9218	0.9211	0.9203	0.9194
800	0.9184	0.9159	0.9136	0.9114	0.9093
810	0.9074	0.9057	0.9040	0.9025	0.9012
820	0.9000	0.8999	0.8980	0.8970	0.8958
830	0.8947	0.8939	0.8933	0.8928	0.8925
840	0.8924	0.8925	0.8928	0.8931	0.8937
850	0.8948	0.9012	0.9073	0.9131	0.9185
860	0.9237	0.9285	0.9329	0.9371	0.9409
870	0.9443	0.9474	0.9503	0.9525	0.9542
880	0.9555	0.9566	0.9573	0.9578	0.9580
890	0.9579	0.9575	0.9565	0.9560	0.9548
900	0.9533	0.9507	0.9480	0.9451	0.9421
910	0.9390	0.9357	0.9323	0.9288	0.9251
920	0.9213	0.9173	0.9132	0.9094	0.9059
930	0.9023	0.9044	0.9053	0.9050	0.9033
940	0.9003	0.8960	0.8905	0.8837	0.8754
950	0.8659	0.8542	0.8425	0.8316	0.8212
960	0.8106	0.7999	0.7891	0.7781	0.7670
970	0.7558	0.7445	0.7330	0.7214	0.7096
980	0.6978	0.6859	0.6740	0.6620	0.6500
990	0.6379	0.6257	0.6134	0.6010	0.5886
1000	0.5760	0.5627	0.5493	0.5360	0.5226
1010	0.5092	0.4957	0.4823	0.4689	0.4556
1020	0.4422	0.4289	0.4156	0.4016	0.3869
1030	0.3727	0.3589	0.3455	0.3325	0.3199
1040	0.3077	0.2958	0.2844	0.2732	0.2624
1050	0.2520	0.2430	0.2341	0.2253	0.2166
1060	0.2080	0.1995	0.1912	0.1829	0.1749
1070	0.1669	0.1591	0.1515	0.1443	0.1374
1080	0.1306	0.1240	0.1174	0.1108	0.1044
1090	0.0981	0.0918	0.0857	0.0796	0.0736
1100	0.0676	0.0597	0.0523	0.0452	0.0386
1110	0.0325	0.0267	0.0214	0.0165	0.0122
1120	0.0081	0.0046	0.0014	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	.697279E-05				

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC28)
CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.6528	0.6528	0.6528	0.6528	0.6528
360	0.6528	0.6528	0.6528	0.6528	0.6528
370	0.6528	0.6528	0.6528	0.6519	0.6504
380	0.6492	0.6483	0.6476	0.6472	0.6472
390	0.6474	0.6479	0.6487	0.6498	0.6511
400	0.6528	0.6572	0.6614	0.6656	0.6696
410	0.6735	0.6773	0.6809	0.6845	0.6879
420	0.6911	0.6943	0.6973	0.7000	0.7024
430	0.7047	0.7070	0.7092	0.7113	0.7134
440	0.7154	0.7173	0.7191	0.7208	0.7225
450	0.7241	0.7251	0.7261	0.7271	0.7282
460	0.7292	0.7303	0.7314	0.7325	0.7336
470	0.7348	0.7359	0.7371	0.7387	0.7406
480	0.7424	0.7441	0.7456	0.7471	0.7484
490	0.7496	0.7507	0.7516	0.7525	0.7532
500	0.7538	0.7531	0.7526	0.7521	0.7517
510	0.7513	0.7510	0.7508	0.7506	0.7505
520	0.7505	0.7505	0.7506	0.7512	0.7521
530	0.7531	0.7539	0.7546	0.7553	0.7558
540	0.7563	0.7568	0.7571	0.7573	0.7575
550	0.7576	0.7571	0.7566	0.7561	0.7556
560	0.7551	0.7546	0.7541	0.7537	0.7532
570	0.7528	0.7523	0.7519	0.7515	0.7513
580	0.7510	0.7507	0.7504	0.7500	0.7496
590	0.7492	0.7487	0.7482	0.7476	0.7470
600	0.7464	0.7455	0.7447	0.7438	0.7429
610	0.7421	0.7412	0.7403	0.7395	0.7386
620	0.7377	0.7368	0.7360	0.7352	0.7345
630	0.7337	0.7330	0.7322	0.7313	0.7304
640	0.7295	0.7285	0.7276	0.7265	0.7255
650	0.7244	0.7232	0.7219	0.7206	0.7194
660	0.7181	0.7168	0.7154	0.7141	0.7127
670	0.7114	0.7100	0.7086	0.7072	0.7057
680	0.7043	0.7028	0.7013	0.6998	0.6983
690	0.6968	0.6953	0.6937	0.6922	0.6906
700	0.6890	0.6875	0.6860	0.6845	0.6829
710	0.6813	0.6796	0.6779	0.6762	0.6745
720	0.6727	0.6709	0.6690	0.6668	0.6643
730	0.6618	0.6595	0.6572	0.6550	0.6529
740	0.6508	0.6488	0.6469	0.6451	0.6433
750	0.6416	0.6403	0.6391	0.6378	0.6366

COMPLETE OPTICAL SYSTEM--WINDOW(2), MIRROR, LENS (FC28)

CAMERA DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
760	0.6353	0.6341	0.6328	0.6316	0.6303
770	0.6291	0.6278	0.6266	0.6254	0.6243
780	0.6232	0.6221	0.6209	0.6197	0.6185
790	0.6172	0.6159	0.6146	0.6132	0.6118
800	0.6103	0.6082	0.6062	0.6042	0.6023
810	0.6006	0.5988	0.5972	0.5957	0.5942
820	0.5929	0.5916	0.5904	0.5892	0.5879
830	0.5868	0.5859	0.5849	0.5842	0.5835
840	0.5830	0.5826	0.5823	0.5822	0.5822
850	0.5822	0.5827	0.5832	0.5838	0.5845
860	0.5852	0.5860	0.5870	0.5880	0.5890
870	0.5902	0.5914	0.5927	0.5945	0.5966
880	0.5987	0.6008	0.6028	0.6048	0.6067
890	0.6096	0.6104	0.6122	0.6139	0.6156
900	0.6173	0.6190	0.6206	0.6222	0.6237
910	0.6251	0.6265	0.6278	0.6291	0.6303
920	0.6314	0.6325	0.6335	0.6339	0.6340
930	0.6341	0.6344	0.6347	0.6351	0.6356
940	0.6361	0.6368	0.6375	0.6384	0.6393
950	0.6403	0.6425	0.6447	0.6467	0.6487
960	0.6505	0.6523	0.6539	0.6555	0.6569
970	0.6582	0.6594	0.6606	0.6611	0.6613
980	0.6614	0.6616	0.6619	0.6622	0.6625
990	0.6629	0.6633	0.6637	0.6642	0.6647
1000	0.6653	0.6662	0.6672	0.6681	0.6690
1010	0.6698	0.6707	0.6715	0.6723	0.6732
1020	0.6740	0.6747	0.6755	0.6764	0.6773
1030	0.6792	0.6790	0.6797	0.6805	0.6811
1040	0.6817	0.6823	0.6828	0.6833	0.6837
1050	0.6840	0.6835	0.6830	0.6827	0.6824
1060	0.6823	0.6822	0.6822	0.6824	0.6826
1070	0.6829	0.6833	0.6838	0.6849	0.6866
1080	0.6882	0.6897	0.6912	0.6925	0.6937
1090	0.6948	0.6959	0.6968	0.6976	0.6984
1100	0.6990	0.6990	0.6990	0.6990	0.6990
1110	0.6990	0.6990	0.6990	0.6990	0.6990
1120	0.6990	0.6990	0.6990	0.6990	0.6990
1130	0.6990	0.6990	0.6990	0.6990	0.6990
1140	0.6990	0.6990	0.6990	0.6990	0.6990
1150	0.6990				

B3L RESPONSIVITY, CAMERA FC2F

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.224054E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0015	0.0073	0.0140
370	0.0220	0.0313	0.0420	0.0605	0.0852
380	0.1089	0.1317	0.1535	0.1744	0.1944
390	0.2136	0.2320	0.2495	0.2663	0.2823
400	0.2976	0.3073	0.3171	0.3271	0.3372
410	0.3474	0.3577	0.3681	0.3787	0.3893
420	0.4001	0.4109	0.4219	0.4344	0.4482
430	0.4615	0.4745	0.4870	0.4990	0.5106
440	0.5218	0.5324	0.5427	0.5524	0.5616
450	0.5704	0.5757	0.5811	0.5864	0.5917
460	0.5971	0.6024	0.6077	0.6129	0.6182
470	0.6235	0.6298	0.6340	0.6394	0.6450
480	0.6505	0.6559	0.6613	0.6666	0.6718
490	0.6770	0.6821	0.6972	0.6921	0.6970
500	0.7019	0.7064	0.7108	0.7152	0.7196
510	0.7239	0.7281	0.7323	0.7365	0.7406
520	0.7447	0.7487	0.7527	0.7560	0.7588
530	0.7618	0.7649	0.7682	0.7717	0.7754
540	0.7793	0.7833	0.7875	0.7918	0.7964
550	0.8011	0.8075	0.8137	0.8199	0.9260
560	0.8320	0.8378	0.8436	0.8493	0.8548
570	0.8602	0.9656	0.8708	0.8764	0.8821
580	0.8876	0.8929	0.8979	0.9027	0.9072
590	0.9115	0.9156	0.9194	0.9230	0.9263
600	0.9294	0.9312	0.9329	0.9346	0.9362
610	0.9378	0.9393	0.9408	0.9422	0.9436
620	0.9449	0.9462	0.9474	0.9487	0.9500
630	0.9512	0.9524	0.9534	0.9544	0.9553
640	0.9561	0.9568	0.9574	0.9579	0.9583
650	0.9587	0.9587	0.9587	0.9587	0.9585
660	0.9584	0.9582	0.9579	0.9577	0.9573
670	0.9569	0.9565	0.9560	0.9549	0.9532
680	0.9517	0.9504	0.9493	0.9482	0.9474
690	0.9467	0.9462	0.9458	0.9456	0.9455
700	0.9455	0.9481	0.9505	0.9525	0.9543
710	0.9558	0.9571	0.9580	0.9587	0.9592
720	0.9594	0.9593	0.9585	0.9569	0.9534
730	0.9502	0.9473	0.9446	0.9421	0.9399
740	0.9379	0.9362	0.9347	0.9334	0.9324
750	0.9316	0.9324	0.9332	0.9339	0.9347

BPI RESPONSIVITY, CAMERA FC2F

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9355	0.9362	0.9369	0.9376	0.9383
770	0.9390	0.9397	0.9404	0.9415	0.9430
780	0.9443	0.9455	0.9464	0.9472	0.9478
790	0.9483	0.9485	0.9466	0.9485	0.9483
800	0.9478	0.9459	0.9441	0.9424	0.9406
810	0.9390	0.9374	0.9358	0.9343	0.9329
820	0.9316	0.9302	0.9290	0.9276	0.9260
830	0.9246	0.9234	0.9222	0.9213	0.9204
840	0.9197	0.9191	0.9187	0.9184	0.9183
850	0.9182	0.9184	0.9187	0.9192	0.9197
860	0.9204	0.9212	0.9222	0.9232	0.9244
870	0.9257	0.9272	0.9287	0.9323	0.9374
880	0.9420	0.9461	0.9458	0.9529	0.9556
890	0.9577	0.9593	0.9604	0.9610	0.9610
900	0.9605	0.9576	0.9544	0.9510	0.9474
910	0.9436	0.9396	0.9354	0.9310	0.9264
920	0.9215	0.9165	0.9112	0.9061	0.9009
930	0.8954	0.8897	0.8836	0.8773	0.8707
940	0.8638	0.8566	0.8491	0.8413	0.8331
950	0.8247	0.8149	0.8049	0.7947	0.7844
960	0.7739	0.7632	0.7523	0.7414	0.7303
970	0.7190	0.7076	0.6961	0.6842	0.6720
980	0.6598	0.6476	0.6354	0.6232	0.6110
990	0.5988	0.5866	0.5744	0.5622	0.5500
1000	0.5377	0.5246	0.5116	0.4987	0.4859
1010	0.4733	0.4607	0.4483	0.4360	0.4238
1020	0.4118	0.3999	0.3981	0.3763	0.3646
1030	0.3530	0.3416	0.3303	0.3193	0.3084
1040	0.2977	0.2872	0.2768	0.2667	0.2567
1050	0.2470	0.2374	0.2260	0.2185	0.2100
1060	0.2013	0.1929	0.1845	0.1764	0.1685
1070	0.1609	0.1534	0.1461	0.1395	0.1335
1080	0.1274	0.1214	0.1154	0.1094	0.1034
1090	0.0975	0.0916	0.0857	0.0798	0.0740
1100	0.0683	0.0603	0.0528	0.0457	0.0390
1110	0.0329	0.0270	0.0217	0.0168	0.0122
1120	0.0082	0.0046	0.0014	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	.143982E-04				

RB2 RESPONSIVITY, CAMERA FC2F

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.308655E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0022	0.0072	0.0135
370	0.0209	0.0295	0.0353	0.0559	0.0780
380	0.0992	0.1197	0.1395	0.1586	0.1770
390	0.1947	0.2119	0.2264	0.2443	0.2597
400	0.2745	0.2857	0.2969	0.3082	0.3196
410	0.3310	0.3424	0.3538	0.3653	0.3768
420	0.3884	0.3999	0.4114	0.4242	0.4379
430	0.4511	0.4640	0.4764	0.4883	0.4998
440	0.5108	0.5214	0.5315	0.5411	0.5502
450	0.5588	0.5639	0.5650	0.5741	0.5792
460	0.5843	0.5895	0.5946	0.5997	0.6049
470	0.6100	0.6152	0.6203	0.6261	0.6322
480	0.6382	0.6441	0.6497	0.6552	0.6605
490	0.6655	0.6704	0.6751	0.6796	0.6839
500	0.6880	0.6895	0.6912	0.6931	0.6952
510	0.6975	0.7000	0.7027	0.7057	0.7088
520	0.7121	0.7156	0.7194	0.7218	0.7234
530	0.7257	0.7287	0.7324	0.7368	0.7419
540	0.7477	0.7542	0.7614	0.7693	0.7780
550	0.7873	0.8094	0.8302	0.8494	0.8673
560	0.8837	0.8986	0.9121	0.9242	0.9348
570	0.9441	0.9519	0.9583	0.9579	0.9519
580	0.9463	0.9411	0.9364	0.9320	0.9280
590	0.9245	0.9213	0.9166	0.9163	0.9143
600	0.9128	0.9140	0.9151	0.9163	0.9175
610	0.9186	0.9198	0.9209	0.9220	0.9231
620	0.9243	0.9254	0.9264	0.9279	0.9296
630	0.9311	0.9325	0.9338	0.9350	0.9361
640	0.9370	0.9378	0.9385	0.9391	0.9395
650	0.9398	0.9395	0.9391	0.9387	0.9383
660	0.9378	0.9373	0.9368	0.9362	0.9356
670	0.9350	0.9343	0.9336	0.9325	0.9310
680	0.9296	0.9283	0.9271	0.9261	0.9251
690	0.9242	0.9235	0.9228	0.9223	0.9219
700	0.9215	0.9224	0.9231	0.9238	0.9243
710	0.9248	0.9252	0.9255	0.9257	0.9258
720	0.9258	0.9257	0.9256	0.9247	0.9232
730	0.9219	0.9207	0.9156	0.9186	0.9178
740	0.9170	0.9164	0.9159	0.9155	0.9153
750	0.9151	0.9158	0.9165	0.9172	0.9179

B32 RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9185	0.9192	0.9158	0.9205	0.9211
770	0.9217	0.9223	0.9230	0.9242	0.9259
780	0.9273	0.9286	0.9296	0.9304	0.9310
790	0.9314	0.9315	0.9315	0.9312	0.9307
800	0.9300	0.9273	0.9247	0.9222	0.9199
810	0.9176	0.9154	0.9134	0.9114	0.9096
820	0.9078	0.9062	0.9047	0.9031	0.9016
830	0.9003	0.8990	0.8979	0.8970	0.8962
840	0.8955	0.8950	0.8946	0.8943	0.8942
850	0.8942	0.8946	0.8952	0.8958	0.8964
860	0.8972	0.8981	0.8991	0.9001	0.9013
870	0.9025	0.9038	0.9053	0.9084	0.9129
880	0.9169	0.9205	0.9236	0.9263	0.9285
890	0.9303	0.9315	0.9323	0.9327	0.9325
900	0.9319	0.9290	0.9260	0.9227	0.9193
910	0.9156	0.9118	0.9077	0.9035	0.8990
920	0.8944	0.8895	0.8845	0.8796	0.8748
930	0.8697	0.8643	0.8565	0.8525	0.8462
940	0.8395	0.8326	0.8253	0.8177	0.8098
950	0.8016	0.7915	0.7812	0.7709	0.7604
960	0.7499	0.7393	0.7287	0.7179	0.7072
970	0.6963	0.6855	0.6746	0.6640	0.6538
980	0.6434	0.6329	0.6222	0.6115	0.6005
990	0.5895	0.5783	0.5765	0.5554	0.5438
1000	0.5320	0.5182	0.5046	0.4911	0.4778
1010	0.4646	0.4516	0.4387	0.4259	0.4133
1020	0.4009	0.3886	0.3765	0.3643	0.3521
1030	0.3401	0.3284	0.3168	0.3055	0.2945
1040	0.2837	0.2731	0.2628	0.2527	0.2430
1050	0.2333	0.2246	0.2160	0.2076	0.1994
1060	0.1914	0.1836	0.1760	0.1685	0.1611
1070	0.1540	0.1470	0.1402	0.1339	0.1281
1080	0.1222	0.1164	0.1106	0.1048	0.0991
1090	0.0933	0.0876	0.0820	0.0763	0.0707
1100	0.0652	0.0576	0.0504	0.0436	0.0373
1110	0.0314	0.0258	0.0207	0.0160	0.0117
1120	0.0078	0.0044	0.0014	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BBJ RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.297043E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0044	0.0104
370	0.0176	0.0260	0.0356	0.0524	0.0749
380	0.0965	0.1173	0.1373	0.1564	0.1748
390	0.1925	0.2095	0.2258	0.2414	0.2563
400	0.2706	0.2807	0.2907	0.3009	0.3110
410	0.3212	0.3314	0.3417	0.3519	0.3622
420	0.3725	0.3828	0.3930	0.4041	0.4157
430	0.4270	0.4381	0.4468	0.4592	0.4694
440	0.4792	0.4887	0.4978	0.5067	0.5151
450	0.5233	0.5294	0.5354	0.5414	0.5473
460	0.5531	0.5589	0.5645	0.5702	0.5757
470	0.5812	0.5866	0.5919	0.5973	0.6027
480	0.6090	0.6131	0.6182	0.6232	0.6280
490	0.6328	0.6374	0.6419	0.6463	0.6506
500	0.6547	0.6572	0.6558	0.6625	0.6653
510	0.6683	0.6714	0.6747	0.6781	0.6816
520	0.6852	0.6890	0.6929	0.6974	0.7022
530	0.7071	0.7119	0.7169	0.7218	0.7267
540	0.7317	0.7367	0.7417	0.7467	0.7518
550	0.7568	0.7618	0.7668	0.7719	0.7769
560	0.7819	0.7870	0.7921	0.7972	0.8023
570	0.8074	0.8126	0.8178	0.8241	0.8314
580	0.8383	0.8448	0.8509	0.8567	0.8621
590	0.8671	0.8717	0.8759	0.8798	0.8833
600	0.8864	0.8862	0.8861	0.8861	0.8863
610	0.8867	0.8871	0.8878	0.8885	0.8894
620	0.8904	0.8915	0.8928	0.8955	0.8994
630	0.9029	0.9062	0.9091	0.9117	0.9139
640	0.9159	0.9175	0.9189	0.9199	0.9206
650	0.9210	0.9189	0.9165	0.9149	0.9131
660	0.9113	0.9095	0.9079	0.9063	0.9048
670	0.9034	0.9021	0.9008	0.8996	0.8984
680	0.8973	0.8962	0.8953	0.8944	0.8936
690	0.8930	0.8923	0.8918	0.8913	0.8910
700	0.8907	0.8915	0.8923	0.8929	0.8934
710	0.8938	0.8941	0.8943	0.8944	0.8943
720	0.8942	0.8939	0.8935	0.8922	0.8900
730	0.8881	0.8863	0.8848	0.8834	0.8822
740	0.8811	0.8803	0.8796	0.8791	0.8788
750	0.8786	0.8802	0.8816	0.8830	0.8842

8?? RESPONSIVITY, CAMERA FC28

CAMERA-DIODE RESPONSIVITY

LAMDA(NM)	+0	+2	+4	+6	+8
760	0.8854	0.8865	0.8875	0.8884	0.8892
770	0.8899	0.8905	0.8911	0.8921	0.8934
780	0.8945	0.8952	0.8958	0.8960	0.8959
790	0.8956	0.8951	0.8942	0.8931	0.8917
800	0.8901	0.8855	0.8812	0.8771	0.8732
810	0.8695	0.8660	0.8627	0.8597	0.8568
820	0.8542	0.8518	0.8496	0.8478	0.8463
830	0.8449	0.8437	0.8427	0.8418	0.8410
840	0.8403	0.8398	0.8394	0.8392	0.8391
850	0.8392	0.8399	0.8406	0.8414	0.8422
860	0.8431	0.8441	0.8450	0.8461	0.8471
870	0.8482	0.8494	0.8506	0.8531	0.8568
880	0.8601	0.8630	0.8655	0.8675	0.8691
890	0.8703	0.8711	0.8714	0.8713	0.8708
900	0.8698	0.8669	0.8636	0.8602	0.8567
910	0.8529	0.8490	0.8449	0.8407	0.8362
920	0.8316	0.8268	0.8219	0.8171	0.8125
930	0.8076	0.8024	0.7969	0.7912	0.7851
940	0.7787	0.7720	0.7651	0.7578	0.7502
950	0.7423	0.7325	0.7226	0.7126	0.7025
960	0.6924	0.6822	0.6720	0.6617	0.6513
970	0.6409	0.6305	0.6201	0.6099	0.6000
980	0.5901	0.5800	0.5698	0.5595	0.5491
990	0.5386	0.5280	0.5173	0.5065	0.4955
1000	0.4845	0.4722	0.4600	0.4478	0.4357
1010	0.4237	0.4117	0.3998	0.3879	0.3761
1020	0.3644	0.3528	0.3412	0.3289	0.3160
1030	0.3034	0.2911	0.2793	0.2677	0.2566
1040	0.2459	0.2355	0.2255	0.2159	0.2067
1050	0.1978	0.1911	0.1846	0.1781	0.1718
1060	0.1655	0.1594	0.1533	0.1473	0.1414
1070	0.1356	0.1299	0.1243	0.1189	0.1136
1080	0.1083	0.1031	0.0979	0.0927	0.0875
1090	0.0824	0.0773	0.0723	0.0673	0.0623
1100	0.0573	0.0506	0.0444	0.0384	0.0328
1110	0.0276	0.0227	0.0182	0.0141	0.0103
1120	0.0069	0.0039	0.0012	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

B04 RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.129987E-04	0.0000	0.0003	0.0019	0.0043
360	0.0076	0.0118	0.0165	0.0230	0.0299
370	0.0377	0.0465	0.0561	0.0706	0.0889
380	0.1067	0.1240	0.1409	0.1574	0.1736
390	0.1893	0.2048	0.2159	0.2346	0.2491
400	0.2634	0.2769	0.2902	0.3036	0.3168
410	0.3299	0.3429	0.3557	0.3684	0.3809
420	0.3933	0.4055	0.4175	0.4296	0.4417
430	0.4535	0.4650	0.4761	0.4869	0.4974
440	0.5076	0.5174	0.5268	0.5359	0.5446
450	0.5530	0.5508	0.5646	0.5704	0.5762
460	0.5820	0.5878	0.5935	0.5953	0.6050
470	0.6107	0.6164	0.6221	0.6291	0.6344
480	0.6405	0.6465	0.6525	0.6582	0.6639
490	0.6694	0.6749	0.6801	0.6853	0.6903
500	0.6951	0.6986	0.7021	0.7057	0.7093
510	0.7130	0.7168	0.7207	0.7246	0.7286
520	0.7326	0.7367	0.7409	0.7453	0.7497
530	0.7542	0.7588	0.7635	0.7682	0.7729
540	0.7778	0.7826	0.7876	0.7925	0.7976
550	0.8027	0.8084	0.8141	0.8198	0.8254
560	0.8308	0.8363	0.8416	0.8469	0.8521
570	0.8572	0.8623	0.8672	0.8727	0.8784
580	0.8840	0.8892	0.8943	0.8990	0.9036
590	0.9079	0.9119	0.9157	0.9192	0.9225
600	0.9255	0.9271	0.9287	0.9302	0.9317
610	0.9331	0.9345	0.9359	0.9372	0.9385
620	0.9397	0.9409	0.9421	0.9436	0.9452
630	0.9467	0.9481	0.9493	0.9504	0.9513
640	0.9521	0.9528	0.9533	0.9537	0.9539
650	0.9540	0.9531	0.9522	0.9513	0.9504
660	0.9496	0.9487	0.9479	0.9471	0.9462
670	0.9454	0.9446	0.9438	0.9428	0.9417
680	0.9406	0.9396	0.9387	0.9379	0.9371
690	0.9365	0.9359	0.9353	0.9349	0.9345
700	0.9342	0.9348	0.9354	0.9358	0.9362
710	0.9365	0.9367	0.9369	0.9369	0.9369
720	0.9368	0.9365	0.9363	0.9352	0.9335
730	0.9319	0.9305	0.9293	0.9282	0.9273
740	0.9265	0.9259	0.9254	0.9251	0.9249
750	0.9249	0.9263	0.9277	0.9290	0.9302

[illegible] RESPONSIVITY, CAMERA FC2P

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9313	0.9324	0.9333	0.9342	0.9349
770	0.9356	0.9362	0.9368	0.9377	0.9389
780	0.9399	0.9406	0.9411	0.9413	0.9413
790	0.9410	0.9405	0.9357	0.9388	0.9375
800	0.9361	0.9322	0.9285	0.9249	0.9215
810	0.9183	0.9152	0.9122	0.9094	0.9068
820	0.9043	0.9019	0.8957	0.8976	0.8957
830	0.8939	0.8923	0.8908	0.8894	0.8882
840	0.8871	0.8862	0.8854	0.8848	0.8843
850	0.8839	0.8839	0.8840	0.8843	0.8846
860	0.8850	0.8854	0.8860	0.8867	0.8875
870	0.8883	0.8893	0.8903	0.8930	0.8971
880	0.9008	0.9039	0.9067	0.9090	0.9108
890	0.9122	0.9132	0.9136	0.9136	0.9132
900	0.9123	0.9092	0.9060	0.9025	0.8989
910	0.8950	0.8910	0.8867	0.8823	0.8777
920	0.8729	0.8679	0.8627	0.8577	0.8529
930	0.8478	0.8423	0.8365	0.8305	0.8240
940	0.8173	0.8102	0.8028	0.7952	0.7871
950	0.7787	0.7680	0.7572	0.7464	0.7356
960	0.7247	0.7138	0.7028	0.6919	0.6809
970	0.6699	0.6590	0.6480	0.6376	0.6277
980	0.6176	0.6074	0.5970	0.5865	0.5759
990	0.5651	0.5542	0.5431	0.5319	0.5205
1000	0.5090	0.4953	0.4818	0.4685	0.4554
1010	0.4424	0.4296	0.4170	0.4045	0.3923
1020	0.3802	0.3683	0.3566	0.3450	0.3336
1030	0.3225	0.3115	0.3007	0.2901	0.2797
1040	0.2695	0.2596	0.2458	0.2403	0.2310
1050	0.2219	0.2133	0.2045	0.1967	0.1886
1060	0.1808	0.1732	0.1657	0.1584	0.1513
1070	0.1444	0.1376	0.1310	0.1249	0.1193
1080	0.1136	0.1080	0.1025	0.0969	0.0915
1090	0.0860	0.0806	0.0753	0.0695	0.0647
1100	0.0595	0.0526	0.0460	0.0398	0.0340
1110	0.0286	0.0236	0.0188	0.0146	0.0107
1120	0.0072	0.0041	0.0013	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

BLUE RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0001	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0000	0.0000
370	0.0000	0.0000	0.0514	0.2326	0.4705
380	0.6839	0.9731	1.0362	1.1799	1.2983
390	1.3945	1.3701	1.3707	1.3963	1.4472
400	1.5231	1.6678	1.8205	1.9813	2.1501
410	2.3261	2.6093	2.8525	3.0546	3.2149
420	3.3346	3.3482	3.3985	3.4796	3.5990
430	3.7679	4.2127	4.6009	4.9307	5.2051
440	5.4223	5.2805	5.2281	5.2645	5.3929
450	5.6114	6.4275	7.0804	7.5743	7.9023
460	8.0600	7.5164	7.0788	6.7450	6.5207
470	6.4035	6.4836	6.5510	6.6233	6.6800
480	6.6932	6.6317	6.5356	6.4196	6.2699
490	6.0940	6.0236	5.8558	5.5892	5.2195
500	4.7467	3.7234	2.8282	2.0567	1.4150
510	0.9009	0.7101	0.5461	0.4080	0.2980
520	0.2145	0.1753	0.1400	0.1189	0.1095
530	0.1005	0.0920	0.0839	0.0763	0.0691
540	0.0624	0.0562	0.0504	0.0451	0.0402
550	0.0358	0.0339	0.0320	0.0303	0.0287
560	0.0273	0.0260	0.0248	0.0238	0.0229
570	0.0221	0.0215	0.0210	0.0202	0.0192
580	0.0185	0.0180	0.0179	0.0180	0.0184
590	0.0191	0.0200	0.0213	0.0228	0.0246
600	0.0267	0.0160	0.0079	0.0024	0.0000
610	0.0000	0.0010	0.0056	0.0125	0.0222
620	0.0343	0.0418	0.0658	0.0942	0.1317
630	0.1686	0.2050	0.2409	0.2762	0.3110
640	0.3452	0.3789	0.4120	0.4446	0.4766
650	0.5081	0.5775	0.6354	0.6938	0.7410
660	0.7811	0.8138	0.8393	0.8577	0.8690
670	0.9732	0.9703	0.8804	0.8105	0.7287
680	0.6513	0.5783	0.5056	0.4453	0.3853
690	0.3296	0.2782	0.2309	0.1880	0.1492
700	0.1145	0.1038	0.0937	0.0842	0.0752
710	0.0669	0.0592	0.0520	0.0455	0.0395
720	0.0341	0.0292	0.0250	0.0230	0.0229
730	0.0227	0.0225	0.0223	0.0221	0.0218
740	0.0215	0.0211	0.0208	0.0204	0.0200
750	0.0195	0.0177	0.0160	0.0146	0.0134

BLUE RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0124	0.0116	0.0111	0.0107	0.0105
770	0.0106	0.0108	0.0113	0.0136	0.0174
780	0.0208	0.0239	0.0266	0.0289	0.0309
790	0.0325	0.0337	0.0346	0.0351	0.0353
800	0.0351	0.0315	0.0261	0.0249	0.0219
810	0.0191	0.0166	0.0142	0.0120	0.0101
820	0.0093	0.0067	0.0053	0.0047	0.0047
830	0.0046	0.0046	0.0046	0.0045	0.0045
840	0.0045	0.0045	0.0044	0.0044	0.0044
850	0.0043	0.0029	0.0017	0.0007	0.0000
860	0.0000	0.0000	0.0000	0.0000	0.0002
870	0.0010	0.0020	0.0033	0.0071	0.0126
880	0.0177	0.0224	0.0267	0.0307	0.0341
890	0.0371	0.0397	0.0419	0.0435	0.0448
900	0.0455	0.0416	0.0379	0.0345	0.0313
910	0.0285	0.0258	0.0235	0.0214	0.0196
920	0.0181	0.0169	0.0155	0.0143	0.0124
930	0.0111	0.0103	0.0101	0.0105	0.0115
940	0.0131	0.0152	0.0180	0.0213	0.0253
950	0.0300	0.0447	0.0585	0.0713	0.0831
960	0.0940	0.1037	0.1123	0.1199	0.1264
970	0.1318	0.1361	0.1352	0.1366	0.1294
980	0.1225	0.1161	0.1102	0.1046	0.0995
990	0.0947	0.0904	0.0866	0.0831	0.0801
1000	0.0775	0.0715	0.0667	0.0629	0.0601
1010	0.0585	0.0578	0.0584	0.0599	0.0626
1020	0.0663	0.0712	0.0772	0.0726	0.0604
1030	0.0532	0.0509	0.0527	0.0604	0.0733
1040	0.0916	0.1146	0.1427	0.1748	0.2132
1050	0.2554	0.3863	0.5077	0.6196	0.7220
1060	0.8161	0.8998	0.9741	1.0403	1.0973
1070	1.1450	1.1823	1.2115	1.2102	1.1822
1080	1.1523	1.1205	1.0869	1.0514	1.0140
1090	0.9747	0.9336	0.8906	0.8458	0.7992
1100	0.7512	0.6631	0.5813	0.5027	0.4294
1110	0.3605	0.2979	0.2366	0.1844	0.1347
1120	0.0913	0.0512	0.0162	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0009				

GREEN RESPONSIVITY, CAMERA FC2B

CAMERA-DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0032	0.0062	0.0091	0.0119
360	0.0146	0.0171	0.0195	0.0218	0.0239
370	0.0260	0.0279	0.0297	0.0312	0.0326
380	0.0338	0.0349	0.0360	0.0370	0.0379
390	0.0387	0.0394	0.0400	0.0406	0.0411
400	0.0414	0.0407	0.0400	0.0394	0.0389
410	0.0386	0.0383	0.0381	0.0380	0.0380
420	0.0381	0.0384	0.0387	0.0383	0.0375
430	0.0370	0.0369	0.0372	0.0378	0.0389
440	0.0403	0.0421	0.0444	0.0470	0.0500
450	0.0535	0.0559	0.0590	0.0627	0.0670
460	0.0721	0.0777	0.0841	0.0911	0.0987
470	0.1071	0.1161	0.1258	0.1306	0.1387
480	0.1607	0.0966	0.0966	0.1563	0.2807
490	0.4657	0.8655	1.2530	1.6280	1.9899
500	2.3375	2.7197	3.0638	3.3686	3.6342
510	3.8634	3.8876	3.9539	4.0643	4.2158
520	4.4095	4.6769	4.9461	5.2011	5.4712
530	5.7775	6.3277	6.8164	7.2507	7.6257
540	7.9397	8.1410	8.3101	8.4444	8.5463
550	8.6145	8.7044	8.7200	8.6929	8.5919
560	8.4135	8.6599	8.5851	8.2304	7.5814
570	6.6727	4.9251	3.5486	2.6064	1.9756
580	1.4737	1.2457	1.0502	0.8874	0.7571
590	0.6598	0.6752	0.6831	0.6823	0.6728
600	0.6545	0.6170	0.5762	0.5324	0.4855
610	0.4351	0.3554	0.2857	0.2264	0.1772
620	0.1382	0.1151	0.0942	0.0813	0.0750
630	0.0690	0.0634	0.0582	0.0534	0.0490
640	0.0450	0.0414	0.0382	0.0354	0.0330
650	0.0309	0.0317	0.0323	0.0330	0.0336
660	0.0342	0.0347	0.0352	0.0357	0.0361
670	0.0365	0.0369	0.0372	0.0378	0.0386
680	0.0393	0.0398	0.0402	0.0404	0.0405
690	0.0405	0.0404	0.0401	0.0397	0.0392
700	0.0386	0.0367	0.0349	0.0332	0.0316
710	0.0300	0.0285	0.0270	0.0256	0.0243
720	0.0231	0.0219	0.0208	0.0194	0.0179
730	0.0165	0.0154	0.0143	0.0135	0.0128
740	0.0123	0.0119	0.0117	0.0117	0.0118
750	0.0120	0.0133	0.0145	0.0158	0.0171

GREEN RESPONSIVITY, CAMERA FC28

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0183	0.0196	0.0209	0.0222	0.0235
770	0.0248	0.0260	0.0273	0.0295	0.0334
780	0.0365	0.0391	0.0413	0.0432	0.0446
790	0.0456	0.0462	0.0464	0.0462	0.0456
800	0.0445	0.0390	0.0339	0.0291	0.0246
810	0.0205	0.0167	0.0132	0.0101	0.0073
820	0.0048	0.0026	0.0008	0.0003	0.0008
830	0.0013	0.0018	0.0022	0.0026	0.0030
840	0.0033	0.0036	0.0039	0.0041	0.0043
850	0.0045	0.0044	0.0042	0.0041	0.0040
860	0.0039	0.0039	0.0039	0.0039	0.0039
870	0.0040	0.0041	0.0042	0.0040	0.0034
880	0.0031	0.0029	0.0028	0.0029	0.0032
890	0.0037	0.0043	0.0051	0.0061	0.0072
900	0.0085	0.0125	0.0162	0.0197	0.0230
910	0.0259	0.0287	0.0312	0.0334	0.0354
920	0.0371	0.0386	0.0397	0.0398	0.0389
930	0.0380	0.0371	0.0363	0.0355	0.0347
940	0.0340	0.0333	0.0326	0.0319	0.0313
950	0.0307	0.0278	0.0253	0.0233	0.0216
960	0.0204	0.0196	0.0192	0.0193	0.0199
970	0.0208	0.0222	0.0241	0.0294	0.0374
980	0.0449	0.0518	0.0581	0.0640	0.0692
990	0.0739	0.0781	0.0817	0.0848	0.0873
1000	0.0893	0.0864	0.0837	0.0811	0.0788
1010	0.0766	0.0746	0.0728	0.0711	0.0697
1020	0.0684	0.0674	0.0665	0.0625	0.0563
1030	0.0514	0.0478	0.0454	0.0443	0.0444
1040	0.0458	0.0485	0.0526	0.0578	0.0645
1050	0.0722	0.0763	0.0825	0.0909	0.1014
1060	0.1141	0.1290	0.1461	0.1654	0.1870
1070	0.2105	0.2365	0.2647	0.3274	0.4186
1080	0.5015	0.5747	0.6407	0.6981	0.7457
1090	0.7845	0.8145	0.8357	0.8480	0.8514
1100	0.8451	0.7468	0.6539	0.5651	0.4829
1110	0.4062	0.3349	0.2677	0.2072	0.1520
1120	0.1023	0.0580	0.0178	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

FFD RESPONSIVITY, CAMERA FC2F

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.744855E-05	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0000	0.0004	0.0013
370	0.0022	0.0034	0.0047	0.0075	0.0116
380	0.0153	0.0199	0.0219	0.0248	0.0273
390	0.0296	0.0316	0.0334	0.0348	0.0360
400	0.0369	0.0356	0.0344	0.0332	0.0320
410	0.0308	0.0297	0.0286	0.0276	0.0265
420	0.0255	0.0246	0.0237	0.0229	0.0223
430	0.0217	0.0211	0.0204	0.0198	0.0192
440	0.0197	0.0181	0.0175	0.0170	0.0164
450	0.0159	0.0151	0.0144	0.0137	0.0131
460	0.0125	0.0120	0.0116	0.0112	0.0108
470	0.0106	0.0103	0.0102	0.0103	0.0106
480	0.0110	0.0113	0.0116	0.0118	0.0121
490	0.0123	0.0125	0.0127	0.0128	0.0129
500	0.0130	0.0129	0.0127	0.0126	0.0124
510	0.0123	0.0123	0.0122	0.0122	0.0121
520	0.0121	0.0121	0.0122	0.0120	0.0116
530	0.0113	0.0111	0.0110	0.0111	0.0112
540	0.0114	0.0118	0.0123	0.0128	0.0135
550	0.0142	0.0133	0.0129	0.0130	0.0136
560	0.0147	0.0163	0.0184	0.0210	0.0242
570	0.0270	0.0305	0.0255	0.0413	0.0505
580	0.0656	0.0741	0.0941	0.1254	0.1682
590	0.2229	0.2686	0.3357	0.4226	0.5319
600	0.6633	0.8245	1.0025	1.1946	1.4021
610	1.4742	1.9496	2.2480	2.5159	2.7558
620	2.9690	3.1638	3.3154	3.4150	3.4768
630	3.5100	3.4586	3.4063	3.3529	3.2987
640	3.2447	3.1534	3.0757	3.0213	2.9803
650	2.9535	2.9810	3.0062	3.0289	3.0492
660	3.0672	3.0770	3.0873	3.0981	3.1094
670	3.1223	3.1250	3.1408	3.1775	3.2237
680	3.2646	3.3518	3.4114	3.4391	3.4384
690	3.4032	3.2870	3.1675	3.0500	2.9343
700	2.8206	2.7245	2.6223	2.5143	2.4000
710	2.2796	2.1864	2.0706	1.9335	1.7752
720	1.5959	1.3539	1.1461	0.9586	0.7955
730	0.6598	0.5809	0.5117	0.4513	0.3985
740	0.3554	0.3349	0.3155	0.2970	0.2794
750	0.2626	0.2502	0.2378	0.2256	0.2135

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RED RESPONSIVITY, CAMERA FC28

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2015	0.1895	0.1777	0.1660	0.1543
770	0.1428	0.1304	0.1194	0.1142	0.1137
780	0.1129	0.1119	0.1106	0.1090	0.1072
790	0.1050	0.1026	0.1000	0.0970	0.0938
800	0.0904	0.0829	0.0756	0.0689	0.0626
810	0.0567	0.0513	0.0463	0.0417	0.0376
820	0.0339	0.0305	0.0275	0.0261	0.0261
830	0.0260	0.0259	0.0258	0.0256	0.0255
840	0.0253	0.0251	0.0245	0.0247	0.0244
850	0.0242	0.0240	0.0238	0.0236	0.0233
860	0.0230	0.0226	0.0222	0.0218	0.0213
870	0.0208	0.0202	0.0196	0.0187	0.0175
880	0.0164	0.0153	0.0143	0.0133	0.0124
890	0.0115	0.0106	0.0098	0.0090	0.0093
900	0.0076	0.0071	0.0065	0.0060	0.0056
910	0.0052	0.0048	0.0045	0.0042	0.0040
920	0.0038	0.0037	0.0036	0.0038	0.0042
930	0.0046	0.0049	0.0052	0.0055	0.0058
940	0.0060	0.0063	0.0065	0.0067	0.0068
950	0.0069	0.0069	0.0068	0.0068	0.0068
960	0.0067	0.0067	0.0066	0.0066	0.0066
970	0.0065	0.0065	0.0065	0.0063	0.0060
980	0.0057	0.0055	0.0054	0.0053	0.0053
990	0.0053	0.0054	0.0055	0.0057	0.0060
1000	0.0063	0.0077	0.0090	0.0101	0.0111
1010	0.0121	0.0129	0.0126	0.0143	0.0148
1020	0.0152	0.0155	0.0156	0.0153	0.0146
1030	0.0139	0.0132	0.0125	0.0119	0.0112
1040	0.0106	0.0101	0.0095	0.0089	0.0084
1050	0.0079	0.0074	0.0070	0.0065	0.0061
1060	0.0057	0.0054	0.0051	0.0048	0.0045
1070	0.0042	0.0040	0.0038	0.0038	0.0039
1080	0.0040	0.0040	0.0041	0.0041	0.0041
1090	0.0041	0.0040	0.0039	0.0039	0.0037
1100	0.0036	0.0032	0.0028	0.0024	0.0021
1110	0.0017	0.0014	0.0011	0.0009	0.0006
1120	0.0004	0.0002	0.0001	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

IPI RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0016	0.0031	0.0046	0.0061
360	0.0075	0.0088	0.0101	0.0114	0.0126
370	0.0138	0.0149	0.0159	0.0172	0.0186
380	0.0199	0.0211	0.0221	0.0230	0.0237
390	0.0243	0.0248	0.0251	0.0253	0.0253
400	0.0253	0.0236	0.0221	0.0206	0.0193
410	0.0180	0.0168	0.0158	0.0148	0.0140
420	0.0132	0.0126	0.0121	0.0122	0.0129
430	0.0135	0.0141	0.0146	0.0150	0.0154
440	0.0157	0.0160	0.0162	0.0163	0.0163
450	0.0163	0.0155	0.0148	0.0141	0.0135
460	0.0129	0.0124	0.0119	0.0115	0.0112
470	0.0109	0.0106	0.0104	0.0105	0.0109
480	0.0112	0.0115	0.0118	0.0120	0.0123
490	0.0125	0.0127	0.0128	0.0130	0.0131
500	0.0132	0.0131	0.0131	0.0130	0.0129
510	0.0129	0.0128	0.0128	0.0127	0.0127
520	0.0126	0.0126	0.0126	0.0126	0.0126
530	0.0126	0.0127	0.0127	0.0127	0.0126
540	0.0126	0.0126	0.0125	0.0124	0.0123
550	0.0123	0.0114	0.0107	0.0101	0.0096
560	0.0092	0.0089	0.0088	0.0087	0.0088
570	0.0090	0.0093	0.0097	0.0110	0.0129
580	0.0147	0.0164	0.0179	0.0193	0.0206
590	0.0217	0.0229	0.0237	0.0244	0.0250
600	0.0255	0.0252	0.0249	0.0246	0.0242
610	0.0239	0.0235	0.0231	0.0228	0.0224
620	0.0219	0.0215	0.0211	0.0205	0.0198
630	0.0192	0.0185	0.0180	0.0174	0.0169
640	0.0164	0.0159	0.0155	0.0151	0.0147
650	0.0144	0.0144	0.0144	0.0144	0.0144
660	0.0143	0.0142	0.0141	0.0139	0.0137
670	0.0135	0.0133	0.0131	0.0126	0.0119
680	0.0112	0.0106	0.0101	0.0096	0.0092
690	0.0089	0.0085	0.0083	0.0081	0.0079
700	0.0079	0.0073	0.0078	0.0079	0.0080
710	0.0082	0.0084	0.0087	0.0090	0.0094
720	0.0098	0.0103	0.0109	0.0093	0.0060
730	0.0035	0.0018	0.0010	0.0009	0.0017
740	0.0032	0.0055	0.0066	0.0124	0.0170
750	0.0224	0.0201	0.0199	0.0221	0.0265

I-I RESPONSIVITY, CAMERA FC2P

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.0330	0.0418	0.0527	0.0659	0.0811
770	0.0986	0.1181	0.1358	0.1373	0.1143
780	0.1031	0.1030	0.1154	0.1383	0.1721
790	0.2182	0.2745	0.3415	0.4206	0.5096
800	0.6099	0.7187	0.8352	0.9532	1.0720
810	1.2181	1.3893	1.5864	1.8202	2.0846
820	2.3647	2.6596	2.9652	3.3799	3.8306
830	4.2210	4.5545	4.8268	5.0316	5.1740
840	5.2679	5.3117	5.3073	5.2374	5.1253
850	4.9967	4.8238	4.6744	4.5437	4.4366
860	4.3541	4.2953	4.2611	4.2586	4.2810
870	4.3236	4.3876	4.4710	4.6183	4.8050
880	4.9757	5.1292	5.2653	5.4588	5.6461
890	5.7634	5.8000	5.7601	5.6270	5.4283
900	5.1673	4.7942	4.4157	3.9879	3.5377
910	3.1222	2.7460	2.4012	2.1130	1.8664
920	1.6416	1.4369	1.2554	1.1104	0.9886
930	0.8795	0.7800	0.6920	0.6255	0.5785
940	0.5340	0.4921	0.4526	0.4156	0.3810
950	0.3489	0.3291	0.3059	0.2916	0.2739
960	0.2570	0.2410	0.2257	0.2113	0.1978
970	0.1851	0.1733	0.1623	0.1542	0.1488
980	0.1436	0.1395	0.1337	0.1291	0.1247
990	0.1205	0.1165	0.1127	0.1091	0.1057
1000	0.1025	0.1000	0.0977	0.0955	0.0934
1010	0.0914	0.0894	0.0877	0.0860	0.0844
1020	0.0829	0.0816	0.0803	0.0792	0.0782
1030	0.0773	0.0765	0.0759	0.0753	0.0749
1040	0.0745	0.0743	0.0742	0.0742	0.0743
1050	0.0745	0.0747	0.0751	0.0755	0.0761
1060	0.0769	0.0777	0.0788	0.0799	0.0812
1070	0.0827	0.0842	0.0860	0.0911	0.0991
1080	0.1061	0.1122	0.1171	0.1212	0.1244
1090	0.1264	0.1275	0.1277	0.1267	0.1248
1100	0.1219	0.1077	0.0542	0.0816	0.0696
1110	0.0586	0.0482	0.0367	0.0298	0.0219
1120	0.0146	0.0092	0.0025	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

[illegible] RESPONSIVITY, CAMERA FC2B

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0000	0.0025	0.0050	0.0074	0.0098
360	0.0121	0.0144	0.0167	0.0189	0.0211
370	0.0232	0.0253	0.0274	0.0298	0.0324
380	0.0349	0.0372	0.0393	0.0412	0.0430
390	0.0446	0.0461	0.0474	0.0486	0.0496
400	0.0504	0.0500	0.0496	0.0492	0.0489
410	0.0486	0.0483	0.0480	0.0478	0.0477
420	0.0475	0.0474	0.0473	0.0471	0.0467
430	0.0464	0.0463	0.0462	0.0463	0.0465
440	0.0468	0.0472	0.0478	0.0484	0.0492
450	0.0501	0.0441	0.0355	0.0361	0.0341
460	0.0334	0.0341	0.0361	0.0395	0.0443
470	0.0504	0.0579	0.0667	0.0807	0.0990
480	0.1174	0.1361	0.1549	0.1740	0.1932
490	0.2125	0.2320	0.2516	0.2714	0.2913
500	0.3112	0.3581	0.4004	0.4379	0.4709
510	0.4993	0.5231	0.5423	0.5570	0.5672
520	0.5726	0.5736	0.5702	0.5414	0.4920
530	0.4450	0.4002	0.3578	0.3178	0.2802
540	0.2450	0.2124	0.1820	0.1543	0.1289
550	0.1061	0.0978	0.0900	0.0825	0.0755
560	0.0689	0.0627	0.0568	0.0514	0.0464
570	0.0418	0.0376	0.0328	0.0315	0.0303
580	0.0292	0.0282	0.0272	0.0262	0.0252
590	0.0243	0.0235	0.0227	0.0219	0.0211
600	0.0204	0.0197	0.0189	0.0183	0.0177
610	0.0172	0.0167	0.0163	0.0159	0.0156
620	0.0154	0.0152	0.0151	0.0151	0.0153
630	0.0155	0.0157	0.0159	0.0162	0.0165
640	0.0168	0.0172	0.0175	0.0179	0.0183
650	0.0188	0.0196	0.0204	0.0211	0.0218
660	0.0225	0.0231	0.0237	0.0243	0.0248
670	0.0253	0.0257	0.0261	0.0255	0.0241
680	0.0230	0.0222	0.0217	0.0215	0.0216
690	0.0220	0.0227	0.0237	0.0250	0.0265
700	0.0284	0.0302	0.0324	0.0349	0.0377
710	0.0409	0.0444	0.0482	0.0524	0.0568
720	0.0616	0.0667	0.0721	0.0811	0.0931
730	0.1041	0.1143	0.1235	0.1320	0.1396
740	0.1464	0.1524	0.1575	0.1619	0.1655
750	0.1683	0.1691	0.1675	0.1665	0.1651

IR2 RESPONSIVITY, CAMERA FC2F

CAMERA-DIODE-RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.1634	0.1613	0.1589	0.1561	0.1529
770	0.1494	0.1456	C.1413	C.1342	0.1250
780	C.1162	0.1078	C.1CC1	C.0928	0.0859
790	0.0796	0.0738	0.0665	0.0637	0.0593
800	C.0554	0.0531	C.0511	0.0493	0.0479
810	C.0467	0.0458	0.0452	C.0449	0.C448
820	0.C450	0.0455	0.0463	0.0461	0.0454
830	C.0453	0.0459	0.0470	0.0489	0.0514
840	C.0545	0.0583	0.0628	C.0679	0.0736
850	C.0802	0.0500	0.0282	0.0133	0.0041
860	C.0031	0.0090	0.0210	0.0410	0.0672
870	C.1016	0.1433	C.1913	0.1767	0.1150
880	0.0941	0.0855	0.1162	0.1797	0.2743
890	0.4012	0.5607	0.7531	C.9775	1.2364
900	1.5299	1.8284	2.1576	2.6145	3.1083
910	3.6896	4.4652	5.19C4	5.94C7	6.6592
920	7.2784	7.7691	8.1590	8.4039	8.5326
930	8.6000	8.5593	8.5267	8.5094	8.5030
940	8.4958	8.4910	8.4853	8.5336	8.5448
950	8.4754	8.3142	8.C7C2	7.7C57	7.2721
960	6.8077	6.2749	5.7525	5.2099	4.6652
970	4.1613	3.6987	3.2755	2.8960	2.5571
980	2.2564	2.0020	1.7751	1.5815	1.4211
990	1.2763	1.1492	1.0376	C.9496	0.8744
1000	0.8034	0.7558	0.7102	0.6664	0.6247
1010	0.5850	0.5473	0.5116	0.4780	0.4463
1020	C.4168	0.3893	0.3635	C.3451	0.3320
1030	0.3196	0.3076	0.2962	0.2854	0.2752
1040	0.2655	0.2564	0.2478	0.2400	0.2326
1050	C.2259	0.2217	0.2178	C.2142	C.2108
1060	0.2077	0.2048	0.2022	0.1998	0.1977
1070	0.1959	0.1942	0.1928	0.1962	0.2034
1080	0.2093	0.2141	0.2174	0.2196	C.2204
1090	C.2199	0.2182	0.2150	C.2107	0.2050
1100	0.1981	0.1749	0.1531	0.1325	0.1132
1110	0.0951	0.0784	0.0629	0.0486	0.0356
1120	0.0238	0.0135	0.0042	C.0000	C.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	C.0000	0.0000	0.00C0	C.0000	C.0000
1150	C.0001				

I?? RESPONSIVITY, CAMERA FC2P

CAMERA CICCE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	0.0090	0.0066	0.0131	0.0195	0.0259
360	C.0322	C.0384	0.C445	C.C506	0.0566
370	0.0626	0.0684	0.C742	0.C815	0.0897
380	0.0974	0.1045	0.1110	0.1169	0.1223
390	C.1271	0.1314	0.1352	C.1384	0.1411
400	C.1432	0.1386	0.1344	0.1307	0.1275
410	C.1248	0.1227	0.1211	0.1201	0.1197
420	0.1198	C.1205	0.1218	C.1244	0.1283
430	C.1325	0.1370	0.1420	0.1473	0.1530
440	0.1590	0.1655	0.1723	0.1795	0.1871
450	0.1950	0.2074	0.2155	C.2313	0.2427
460	C.2538	C.2646	C.2750	0.2851	0.2948
470	0.3042	0.3132	0.3219	0.3339	0.3484
480	0.3614	C.3728	0.3827	C.3909	C.3976
490	0.4025	0.4059	0.4077	0.4078	0.4063
500	0.4031	0.3844	0.3666	0.3495	0.3331
510	C.3175	0.3027	0.2866	0.2753	0.2627
520	C.2508	0.2396	0.2252	C.2206	0.2135
530	0.2068	C.2004	0.1944	0.1888	0.1835
540	C.1785	0.1740	0.1698	C.1659	0.1625
550	C.1594	0.1576	0.1561	0.1548	0.1536
560	0.1527	0.1520	0.1515	0.1512	0.1511
570	0.1513	0.1516	0.1522	C.1529	0.1540
580	0.1552	0.1566	C.1582	C.1600	0.1620
590	0.1642	0.1666	0.1651	0.1719	0.1748
600	C.1779	0.1811	0.1845	C.1881	0.1919
610	C.1959	0.2000	0.2044	0.2090	C.2138
620	0.2188	0.2240	0.2294	0.2349	0.2407
630	0.2466	0.2527	0.2591	C.2656	0.2723
640	C.2793	0.2864	0.2927	C.3012	C.3089
650	C.3168	0.3241	0.3317	0.3397	0.3479
660	C.3564	0.3653	C.3745	0.3839	0.3937
670	C.4038	0.4141	C.4248	0.4342	0.4426
680	0.4519	0.4620	0.4729	0.4846	0.4971
690	0.5104	0.5245	0.5354	0.5550	0.5714
700	C.5887	0.6389	0.6843	C.7248	C.7602
710	C.7907	0.8160	0.8368	0.8526	0.8637
720	0.3699	0.8714	0.8680	C.8443	0.8040
730	C.7646	0.7262	0.6866	C.6519	0.6160
740	C.5809	0.5467	0.5121	0.4804	0.4485
750	0.4173	0.3793	0.3434	0.3094	0.2775

[illegible] RESPONSIVITY, CAMERA FC2P

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.2474	0.2194	0.1933	0.1691	0.1468
770	0.1264	0.1090	0.0914	0.0814	0.0769
780	0.0726	0.0686	0.0648	0.0612	0.0578
790	0.0547	0.0518	0.0491	0.0466	0.0444
800	0.0424	0.0411	0.0399	0.0389	0.0380
810	0.0372	0.0365	0.0360	0.0356	0.0353
820	0.0352	0.0351	0.0352	0.0349	0.0344
830	0.0341	0.0341	0.0344	0.0350	0.0359
840	0.0370	0.0384	0.0401	0.0421	0.0444
850	0.0469	0.0458	0.0457	0.0465	0.0484
860	0.0512	0.0549	0.0596	0.0654	0.0721
870	0.0799	0.0887	0.0985	0.0972	0.0886
880	0.0850	0.0861	0.0923	0.1035	0.1196
890	0.1407	0.1670	0.1986	0.2354	0.2773
900	0.3259	0.3093	0.3050	0.3273	0.3609
910	0.4122	0.4826	0.5697	0.6760	0.7981
920	0.9395	1.0979	1.2757	1.5566	1.9224
930	2.2778	2.6206	2.9534	3.2738	3.5831
940	3.8827	4.1691	4.4456	4.7118	4.9672
950	5.2133	5.5382	5.8260	6.0810	6.2956
960	6.4736	6.6123	6.7127	6.7479	6.7319
970	6.7034	6.6601	6.6019	6.5097	6.3941
980	6.2801	6.1676	6.0567	5.9445	5.8329
990	5.7253	5.6216	5.5216	5.4340	5.3459
1000	5.2453	5.1210	4.9974	4.8745	4.7521
1010	4.6307	4.5100	4.3901	4.2708	4.1524
1020	4.0351	3.9188	3.8035	3.6911	3.5805
1030	3.4698	3.3589	3.2477	3.1323	3.0135
1040	2.9004	2.7904	2.6862	2.5888	2.4948
1050	2.3989	2.2933	2.1932	2.0975	2.0066
1060	1.9203	1.8393	1.7629	1.6957	1.6349
1070	1.5751	1.5161	1.4579	1.4118	1.3714
1080	1.3229	1.2696	1.1944	1.0707	0.9201
1090	0.8015	0.7151	0.6624	0.6723	0.7019
1100	0.6984	0.6327	0.5679	0.5008	0.4339
1110	0.3702	0.3097	0.2528	0.1981	0.1450
1120	0.0982	0.0555	0.0180	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0011				

SURVEY RESPONSIVITY, CAMERA FC28

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
350	.323972E-04	0.0000	0.0000	0.0000	0.0000
360	0.0000	0.0000	0.0040	0.0095	0.0162
370	0.0241	0.0333	0.0437	0.0620	0.0866
380	0.1100	0.1324	0.1537	0.1740	0.1934
390	0.2118	0.2292	0.2457	0.2614	0.2761
400	0.2900	0.3027	0.3151	0.3273	0.3392
410	0.3509	0.3604	0.3702	0.3803	0.3905
420	0.4010	0.4119	0.4228	0.4364	0.4521
430	0.4673	0.4819	0.4958	0.5092	0.5220
440	0.5341	0.5456	0.5565	0.5667	0.5763
450	0.5852	0.5888	0.5925	0.5963	0.6002
460	0.6043	0.6084	0.6127	0.6172	0.6217
470	0.6264	0.6312	0.6361	0.6417	0.6478
480	0.6539	0.6598	0.6656	0.6713	0.6770
490	0.6825	0.6889	0.6946	0.6998	0.7043
500	0.7081	0.7077	0.7082	0.7095	0.7116
510	0.7145	0.7219	0.7290	0.7358	0.7423
520	0.7485	0.7545	0.7602	0.7643	0.7671
530	0.7700	0.7732	0.7765	0.7800	0.7838
540	0.7877	0.7918	0.7961	0.8005	0.8052
550	0.8100	0.8156	0.8212	0.8269	0.8325
560	0.8382	0.8439	0.8456	0.8554	0.8612
570	0.8670	0.8726	0.8766	0.8871	0.8973
580	0.9065	0.9146	0.9217	0.9277	0.9327
590	0.9366	0.9372	0.9380	0.9388	0.9397
600	0.9407	0.9424	0.9441	0.9457	0.9474
610	0.9490	0.9506	0.9522	0.9537	0.9553
620	0.9568	0.9583	0.9598	0.9617	0.9639
630	0.9660	0.9678	0.9696	0.9711	0.9725
640	0.9738	0.9748	0.9758	0.9765	0.9771
650	0.9776	0.9770	0.9765	0.9759	0.9753
660	0.9747	0.9741	0.9735	0.9729	0.9722
670	0.9716	0.9709	0.9702	0.9692	0.9678
680	0.9665	0.9654	0.9644	0.9635	0.9627
690	0.9620	0.9614	0.9609	0.9606	0.9603
700	0.9602	0.9619	0.9634	0.9647	0.9658
710	0.9667	0.9674	0.9675	0.9682	0.9683
720	0.9683	0.9680	0.9676	0.9656	0.9625
730	0.9596	0.9570	0.9547	0.9526	0.9508
740	0.9492	0.9479	0.9468	0.9460	0.9454
750	0.9450	0.9450	0.9452	0.9457	0.9464

SURVEY RESPONSIVITY, CAMERA FC2R

CAMERA DIODE RESPONSIVITY

LAMBDA(NM)	+0	+2	+4	+6	+8
760	0.9474	0.9487	0.9501	0.9519	0.9539
770	0.9561	0.9590	0.9616	0.9637	0.9653
780	0.9668	0.9682	0.9653	0.9704	0.9714
790	0.9721	0.9728	0.9734	0.9737	0.9740
800	0.9741	0.9737	0.9731	0.9725	0.9719
810	0.9713	0.9705	0.9658	0.9690	0.9682
820	0.9673	0.9664	0.9655	0.9631	0.9598
830	0.9570	0.9547	0.9530	0.9518	0.9512
840	0.9511	0.9515	0.9525	0.9542	0.9564
850	0.9585	0.9599	0.9615	0.9632	0.9650
860	0.9671	0.9692	0.9715	0.9740	0.9766
870	0.9793	0.9823	0.9853	0.9905	0.9975
880	1.0039	1.0098	1.0152	1.0202	1.0245
890	1.0285	1.0318	1.0346	1.0369	1.0386
900	1.0399	1.0399	1.0355	1.0386	1.0373
910	1.0355	1.0333	1.0307	1.0276	1.0240
920	1.0201	1.0156	1.0108	1.0044	0.9973
930	0.9903	0.9887	0.9863	0.9830	0.9791
940	0.9743	0.9689	0.9626	0.9554	0.9476
950	0.9390	0.9307	0.9219	0.9118	0.9007
960	0.8894	0.8780	0.8665	0.8549	0.8431
970	0.8314	0.8195	0.8075	0.7960	0.7847
980	0.7733	0.7617	0.7459	0.7379	0.7257
990	0.7133	0.7007	0.6879	0.6749	0.6616
1000	0.6482	0.6325	0.6170	0.6016	0.5863
1010	0.5710	0.5560	0.5410	0.5261	0.5114
1020	0.4968	0.4823	0.4680	0.4536	0.4393
1030	0.4251	0.4112	0.3974	0.3837	0.3703
1040	0.3570	0.3440	0.3312	0.3185	0.3060
1050	0.2938	0.2809	0.2683	0.2562	0.2444
1060	0.2331	0.2221	0.2115	0.2012	0.1913
1070	0.1818	0.1726	0.1638	0.1564	0.1503
1080	0.1440	0.1378	0.1315	0.1252	0.1189
1090	0.1125	0.1061	0.0997	0.0933	0.0868
1100	0.0804	0.0710	0.0621	0.0538	0.0460
1110	0.0386	0.0318	0.0255	0.0197	0.0144
1120	0.0097	0.0054	0.0017	0.0000	0.0000
1130	0.0000	0.0000	0.0000	0.0000	0.0000
1140	0.0000	0.0000	0.0000	0.0000	0.0000
1150	0.0000				

III

IPL CALIBRATION DATA TRANSMITTAL REPORTS

III-A

FC-2B CAMERA

atwood

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 1/16/75

CALIBRATION RUN POINT SPREAD FUNCTION FC-2B CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Listings of the pixel matrix of an area around the illuminated pin hole target.

Two listings for each of the broadband, visual color and IR diodes are included, with the channel and gain setting noted. The exception being the green channel which was listed four times because of a secondary peak in the point spread function.

Results Summary attached.

TEST DESCRIPTION The 0.150" pin hole target was scanned at low and high gain settings for each diode. Target distance = 2.62 meters. Offset = 1 for all frames.

DATA PROCESSING DESCRIPTION 30x15 pixel listings were generated for each frame centered on the image of the pinhole.

ANALYST Michael Edward Wolf

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

8x10 hard copies made of the point spread frames showed a secondary peak for the green diode. This area was subsequently listed to get quantitative data. These listings, along with calibration data, indicate the radiance ratio of the peaks to be 88:1, and that the secondary peak is 21 low resolution pixels higher in azimuth than the primary one (2.52 degrees). There is no difference in elevation.

This may cause "ghosting" in visual color or monocolor mode of the green component.

HCLE IS .15C INCH
TCT DISTANCE 2.62 METERS G-6 FIXTURE
PRINT ZEROS 5C 35C 30 15

VIKING LANDER * CAMERA * FC2B
DARK CURRENT SUBTRACTOR ON **BB1** OFFSET1 GAIN 5 CMT TIME **C**C**

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	1	3	5	2	0	0	0	0	0	0	0
66	0	0	0	1	2	18	23	14	1	0	0	0	0	0	0
67	0	0	0	0	3	25	$\boxed{37}$	13	0	0	0	0	0	0	0
68	0	0	0	0	0	5	8	2	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VIKING LANDER *   CAMERA *   FC28   GMT TIME **C**C**   C

DARK CURRENT SUBTRACTOR ON   BB1 OFFSET 1 GAIN 3   L

LINE \ SAMP	250		252		254		256		258		260		262		264
50	4	3	3	3	4	4	3	4	4	4	4	4	4	4	4
51	3	3	3	3	3	4	4	4	4	5	4	3	3	4	4
52	3	4	4	4	3	4	3	4	3	3	3	3	3	3	3
53	3	3	3	3	3	3	3	4	4	4	3	4	3	4	4
54	4	4	4	4	4	4	4	5	5	4	4	3	3	3	3
55	4	4	3	3	3	4	3	3	4	4	4	4	4	4	4
56	4	3	3	3	3	4	4	4	4	4	5	4	3	3	4
57	4	4	3	3	3	3	4	3	4	3	3	3	3	3	3
58	3	3	3	3	3	3	3	4	4	4	4	3	4	4	3
59	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
60	4	3	3	4	3	3	4	4	4	3	4	4	4	4	4
61	4	3	3	3	3	3	4	4	5	4	5	4	3	3	4
62	4	3	4	3	3	4	3	3	3	4	4	3	3	3	3
63	4	3	3	3	3	3	4	4	4	4	3	3	3	5	3
64	4	3	4	4	4	5	5	4	5	4	4	4	3	3	3
65	5	4	3	4	6	11	15	10	4	4	4	4	4	4	4
66	3	4	3	4	11	62	62	55	7	5	4	4	4	3	3
67	3	4	4	5	14	62	62	57	5	4	4	3	3	3	3
68	4	3	3	4	4	17	34	17	5	4	4	4	4	4	4
69	4	4	4	4	5	4	5	5	5	5	4	4	3	3	3
70	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4
71	4	4	3	3	3	4	4	4	4	5	5	5	4	3	4
72	4	4	4	4	3	3	3	4	4	4	3	3	3	3	3
73	4	3	3	3	3	3	3	4	4	4	4	4	4	4	3
74	4	4	4	4	4	4	4	4	5	5	4	3	3	4	3
75	4	4	3	3	3	3	4	3	4	4	4	4	4	4	4
76	4	4	4	3	3	3	4	4	4	4	5	5	4	3	4
77	4	4	4	4	3	3	3	3	4	3	3	4	4	3	3
78	4	4	3	3	3	3	3	3	5	4	4	4	4	4	4
79	4	4	4	4	3	4	4	4	5	4	4	4	3	3	3

VIKING LANDER * CAMERA * FC2B
DARK CURRENT SUBTRACTOR ON GMT TIME **C**C**

VIKING LANDER * CAMERA * FC2B
DARK CURRENT SUBTRACTOR ON GMT TIME **C**C**

BB2 OFFSET 1 GAIN 5

LINE \ SAMP	250		252		254		256		258		260		262		264
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
66	0	0	0	0	0	2	26	22	1	0	0	0	0	0	0
67	0	0	0	0	0	8	$\boxed{65}$	40	2	0	0	0	0	0	0
68	0	0	0	0	0	1	13	8	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VIKING LANDER *   CAMERA *   FC28   GMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON   C
BB2   OFFSET 1 GAIN3   L

LINE \ SAMP	250		252		254		256		256		260		262		264
50	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3
51	3	3	3	3	3	3	3	3	3	3	4	3	3	4	3
52	4	3	4	4	3	3	4	4	4	4	3	3	3	3	3
53	4	3	3	3	4	4	3	3	4	4	3	3	4	3	4
54	4	3	3	3	3	4	4	4	4	4	4	3	3	3	3
55	3	4	4	3	3	3	3	3	3	3	3	4	3	3	3
56	3	3	3	3	3	3	3	4	4	4	3	4	4	4	3
57	4	3	4	4	4	3	4	4	4	4	3	3	3	3	3
58	4	3	3	3	3	3	4	3	4	4	4	3	3	4	4
59	3	3	3	3	3	3	4	4	4	4	4	4	3	3	3
60	4	3	3	3	3	3	3	3	4	3	3	3	3	3	3
61	3	3	3	3	3	3	3	3	4	4	4	3	3	4	4
62	4	3	4	4	3	4	4	4	4	4	4	3	3	3	3
63	4	3	3	3	3	4	4	4	4	4	4	4	4	4	3
64	3	3	3	3	3	4	4	4	4	4	4	4	3	3	3
65	4	4	4	4	4	5	6	5	4	4	4	4	4	3	3
66	3	4	3	3	4	14	62	62	5	4	3	3	3	4	3
67	4	4	4	4	5	22	62	62	13	4	3	4	3	3	3
68	5	4	4	4	4	7	59	33	5	4	4	4	4	3	4
69	4	4	3	3	4	4	5	4	5	4	4	4	4	4	4
70	4	4	4	4	4	4	4	4	4	4	4	3	3	3	4
71	4	3	3	3	3	3	4	4	4	4	4	4	3	3	4
72	4	3	4	4	4	4	4	4	4	4	4	4	5	3	3
73	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
74	5	4	3	3	3	4	4	4	4	4	5	4	3	3	3
75	4	4	4	4	3	3	4	4	3	4	4	4	3	3	3
76	4	4	3	4	3	3	3	4	4	4	4	4	4	4	4
77	4	3	4	4	4	4	4	4	4	4	4	4	4	4	3
78	4	4	3	3	3	4	4	4	4	4	4	4	4	4	4
79	3	3	3	3	3	3	4	4	4	4	4	4	4	4	3

VIKING LANDER *   CAMERA *   FC2B   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   BB3   OFFSET 1 GAIN 5   L

SAMP / LINE	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	1	2	2	0	0	0	0	0	0	0	0
65	0	0	0	0	2	13	16	5	0	0	0	0	0	0	0
66	0	0	0	0	9	$\boxed{31}$	29	7	0	0	0	0	0	0	0
67	0	0	0	0	3	18	21	7	0	0	0	0	0	0	0
68	0	0	0	0	0	4	3	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VIKING LANDER * CAMERA * FC2B CMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON

BB3 OFFSET 1 GAIN 3

LINE \ SAMP	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267
50	3	3	3	3	3	4	3	3	3	3	3	3	3	2	3
51	3	3	3	2	2	3	3	4	3	3	4	3	3	3	3
52	3	3	4	4	3	4	3	4	4	4	4	4	3	2	2
53	4	3	3	3	3	4	3	3	3	3	4	3	3	4	3
54	3	3	2	2	3	3	3	4	4	4	4	4	3	3	3
55	3	3	3	3	3	3	3	3	3	3	3	3	3	2	2
56	3	3	3	3	2	2	3	3	3	3	3	3	3	3	2
57	4	3	3	4	4	4	3	3	4	4	4	4	3	3	2
58	4	4	3	3	3	3	3	3	3	4	3	4	3	4	3
59	3	3	3	2	2	3	3	4	4	4	4	4	3	3	3
60	3	3	3	4	2	3	3	3	3	3	3	3	3	2	2
61	4	3	3	2	3	3	2	3	3	3	4	3	3	3	3
62	3	4	4	4	4	4	3	3	4	4	4	3	3	3	2
63	4	3	3	3	3	4	3	4	3	3	4	3	3	3	3
64	3	3	3	3	4	9	9	5	4	4	4	5	4	3	2
65	4	4	4	5	16	60	61	16	4	3	5	3	3	3	3
66	4	4	3	4	21	62	62	59	7	4	4	3	3	4	3
67	4	4	4	5	24	62	62	19	5	4	4	4	3	3	3
68	5	4	3	4	4	14	19	6	4	4	4	4	4	4	4
69	4	3	3	3	3	4	4	4	5	5	4	5	4	3	[illegible]
70	4	4	3	3	3	4	4	3	4	4	3	3	3	3	[illegible]
71	4	3	3	3	3	3	3	4	4	4	4	4	3	3	[illegible]
72	4	3	4	4	4	3	4	4	5	4	4	4	3	3	[illegible]
73	4	4	3	3	3	4	3	4	4	4	4	4	3	4	[illegible]
74	3	4	3	3	2	4	3	4	4	4	4	4	4	3	[illegible]
75	3	3	3	3	3	3	3	3	3	3	3	4	3	3	[illegible]
76	4	3	3	3	3	2	3	4	4	3	4	4	3	3	[illegible]
77	4	4	3	4	4	4	4	4	4	5	4	4	3	3	[illegible]
78	4	4	3	3	3	4	3	3	3	3	4	4	4	4	[illegible]
79	3	3	3	3	2	3	3	4	4	4	4	5	4	3	[illegible]

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON BB4 OFFSET 1 GAIN 5 L

SAMP	253		255		257		259		261		263		265		267
LINE															
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	2	3	2	1	0	0	0	0	0	0
63	0	0	0	0	1	5	9	5	5	1	0	0	0	0	0
64	0	0	0	0	3	9	12	13	9	3	0	0	0	0	0
65	0	0	0	0	3	9	13	13	9	2	0	0	0	0	0
66	0	0	0	0	2	7	11	11	7	2	0	0	0	0	0
67	0	0	0	0	0	3	5	5	2	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VIKING LANCEF * CAMERA * FC2B GMT TIME **C**C** C
DARK CURRENT SUETRACTCR CN BB4 OFFSET 1 GAIN 3 L

LINE	SAMP 253		255		257		259		261		263		265		267
50	4	4	3	3	3	3	4	4	4	4	4	4	3	4	4
51	4	3	3	3	3	3	4	4	4	4	4	4	4	3	3
52	3	3	3	3	4	3	3	3	4	3	3	4	4	3	3
53	4	3	3	3	3	3	3	3	4	4	4	4	4	4	3
54	4	3	3	4	4	4	3	3	4	4	4	4	3	3	3
55	4	4	3	3	3	3	4	4	3	3	4	4	4	4	4
56	4	3	3	3	3	3	3	4	4	4	4	4	4	3	3
57	4	4	3	3	3	3	3	3	4	3	3	4	4	4	3
58	4	4	3	3	3	3	3	3	3	4	4	4	3	4	3
59	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3
60	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4
61	4	4	3	3	3	4	4	4	4	4	4	4	4	3	3
62	4	3	4	3	4	7	12	11	6	4	4	3	3	3	3
63	4	4	4	4	9	24	27	34	17	6	5	4	4	3	3
64	4	4	3	5	14	36	50	54	35	11	5	4	4	3	3
65	4	3	4	4	12	35	50	54	41	13	4	4	3	4	3
66	3	3	3	3	9	28	44	44	29	10	4	4	4	4	3
67	3	3	3	4	4	11	19	20	11	4	4	4	4	3	3
68	4	3	3	3	3	4	4	4	4	4	4	3	4	3	3
69	4	3	4	3	4	4	3	3	3	4	4	4	4	3	3
70	4	4	4	3	3	3	5	3	3	3	4	4	3	3	3
71	3	3	3	4	3	3	3	3	3	4	4	4	4	4	3
72	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3
73	4	4	3	3	3	3	2	3	2	3	3	3	3	4	3
74	3	3	3	4	3	3	3	3	3	3	4	4	3	3	3
75	4	4	4	3	3	3	3	3	3	3	3	4	3	3	3
76	3	3	3	3	3	3	3	3	3	3	4	4	4	4	3
77	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
78	4	4	3	3	3	3	3	2	2	3	4	4	3	3	3
79	3	4	3	3	3	3	4	3	3	3	4	4	3	3	3

VIKING LANDER *   CAMERA *   FC2B   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   BLUE OFFSET 1 GAIN 3   L

SAMP	390		392		394		396		398		400		402		404
LINE															
50	4	3	3	3	3	4	3	3	4	4	4	4	4	4	3
51	4	3	3	3	3	3	3	5	4	5	4	4	3	4	3
52	4	4	4	3	3	3	4	4	2	3	4	4	3	3	3
53	4	3	3	3	3	3	4	4	4	4	4	3	4	3	3
54	4	3	4	4	3	4	4	4	4	4	4	3	4	3	2
55	4	3	3	3	3	3	4	4	3	4	4	3	4	4	4
56	3	3	3	3	3	3	4	4	4	4	4	4	4	3	3
57	4	3	3	3	4	3	3	3	3	4	3	3	3	4	3
58	3	3	3	3	2	3	4	4	4	4	3	4	4	3	3
59	3	4	4	3	4	4	4	4	4	3	3	3	3	3	3
60	4	3	3	3	4	3	3	4	4	3	4	4	4	4	3
61	4	4	3	3	3	4	4	4	5	4	4	4	4	3	3
62	4	3	4	3	3	4	3	4	3	4	4	3	3	3	3
63	3	4	3	3	3	4	4	6	6	5	4	4	3	3	4
64	3	4	4	4	4	8	16	17	12	6	5	4	3	3	3
65	5	5	3	4	5	14	34	43	30	12	6	4	5	4	4
66	4	4	4	4	5	17	43	$\boxed{54}$	41	16	6	5	4	4	4
67	4	4	4	4	4	12	31	41	28	11	5	4	4	4	4
68	4	3	4	4	5	7	14	16	10	6	5	4	4	4	4
69	4	5	5	5	5	5	5	5	6	5	4	4	5	4	3
70	4	4	4	4	4	4	4	4	4	5	5	4	4	5	4
71	4	4	3	4	4	4	4	5	5	5	4	5	4	4	4
72	4	4	4	4	4	4	4	5	4	4	5	4	4	4	3
73	3	4	4	3	4	4	3	4	5	4	4	4	4	4	4
74	4	4	5	4	4	4	4	4	4	5	5	4	4	4	3
75	4	4	4	4	4	4	4	3	4	4	5	4	5	4	4
76	4	4	3	3	4	4	4	5	5	5	4	5	5	4	4
77	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4
78	4	4	4	4	3	4	3	4	4	5	4	4	4	4	4
79	4	5	4	5	4	4	4	5	5	5	3	5	4	3	3

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON BLUE OFFSET 1 GAIN 1

LINE \ SAMP	390		392		394		396		398		400		402		404
50	17	18	19	13	15	16	16	17	13	15	16	17	17	19	16
51	18	17	17	18	15	16	18	17	16	17	19	18	19	16	17
52	17	18	19	19	19	14	17	16	17	16	15	16	17	16	19
53	15	17	17	14	18	13	13	15	17	15	18	17	19	18	18
54	17	18	17	17	17	17	16	15	14	18	14	15	16	17	17
55	18	17	17	16	17	16	16	14	16	13	18	16	17	16	18
56	16	19	18	17	18	18	18	17	19	15	19	19	19	18	15
57	17	17	19	17	17	14	13	18	14	16	18	16	17	18	16
58	16	16	15	15	18	16	15	16	15	18	17	17	20	18	16
59	16	17	16	15	18	16	16	16	14	18	17	15	14	17	17
60	18	17	19	17	17	16	13	16	15	16	17	18	17	17	14
61	19	17	17	17	18	18	18	17	16	15	18	17	18	16	16
62	17	19	17	19	19	18	17	17	15	18	17	16	19	18	17
63	17	13	19	17	18	17	21	25	22	20	19	20	16	18	20
64	16	14	17	17	20	27	60	62	51	29	19	17	16	14	16
65	16	17	17	16	21	53	62	62	62	46	22	14	18	17	15
66	14	17	17	14	22	62	62	62	62	61	24	18	19	20	18
67	16	17	17	17	23	59	62	62	62	39	21	16	17	17	17
68	16	13	17	16	17	22	50	62	40	20	18	17	19	16	17
69	16	16	16	16	18	17	19	22	17	18	15	15	16	16	15
70	16	17	19	17	15	14	17	17	14	18	17	13	18	16	17
71	16	17	17	16	16	16	18	18	15	17	15	16	16	19	17
72	17	15	20	17	16	15	15	17	15	13	15	15	17	17	16
73	14	15	13	14	15	15	15	15	14	14	15	16	18	18	16
74	14	16	17	16	18	14	16	14	14	14	16	16	12	14	14
75	16	17	18	17	15	14	16	15	12	13	13	17	17	17	17
76	13	15	14	16	15	15	15	18	15	15	15	15	18	18	16
77	17	19	19	14	16	14	15	17	15	16	14	14	15	17	15
78	13	15	14	12	16	14	14	11	12	16	16	19	17	18	17
79	12	15	18	16	15	17	15	14	14	16	16	15	14	16	15

VIKING LANDER * CAMERA * FC28 GMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON

VIKING LANDER * CAMERA * FC28 GMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON

GREEN OFFSET 1 GAIN 4

SAMP	390		392		394		396		398		400		402	
LINE														
50	1	0	1	2	1	1	1	2	C	1	2	2	1	2
51	1	2	1	2	2	2	1	1	1	C	C	1	1	1
52	1	1	1	1	1	1	1	1	1	1	1	1	2	1
53	0	1	1	1	1	1	1	2	C	C	C	1	1	1
54	1	1	2	2	1	1	C	C	C	C	1	C	2	1
55	1	1	1	0	1	2	1	1	1	1	1	1	2	2
56	1	1	1	1	1	1	1	1	1	1	1	1	2	1
57	1	1	1	0	1	1	1	1	C	C	1	1	1	1
58	1	0	0	1	1	1	1	1	1	C	1	1	1	1
59	1	2	1	1	2	1	C	1	1	1	C	C	1	1
60	1	1	1	1	1	2	1	1	1	1	1	1	1	1
61	1	1	2	2	2	2	2	2	1	1	1	C	1	1
62	1	1	1	1	1	1	2	2	1	C	1	C	1	1
63	1	0	1	2	2	2	3	4	3	2	1	1	1	C
64	1	1	1	2	2	4	11	14	9	3	1	C	1	1
65	2	2	2	2	3	12	3C	35	21	6	3	2	2	2
66	2	2	2	3	3	12	33	$\boxed{42}$	31	9	3	2	2	2
67	2	2	2	2	3	8	23	29	18	5	2	2	2	2
68	2	2	2	2	2	3	7	9	5	2	2	2	2	2
69	2	2	2	2	2	2	3	3	2	2	2	1	2	2
7C	2	2	2	2	2	2	2	2	2	2	2	3	2	2
71	1	2	2	2	2	2	2	3	3	2	2	2	2	2
72	2	2	2	2	2	2	2	2	2	2	2	2	2	2
73	2	2	2	2	2	2	2	2	2	2	2	2	2	2
74	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	2	2	2	2	2	2	2	3
76	2	2	2	2	2	2	2	3	2	2	2	2	2	2
77	2	2	2	2	2	2	2	2	2	2	2	2	2	2
78	2	2	2	2	2	2	2	2	2	2	2	2	2	2
79	2	2	2	2	2	2	2	3	3	2	2	2	2	2

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON L

GREEN OFFSET 1 GAIN 2

SAMP	390		392		394		396		398		400		402		404
LINE															
50	7	8	6	5	6	7	8	7	7	7	7	7	8	8	7
51	6	6	5	6	6	7	7	8	7	8	9	8	7	6	6
52	7	7	7	6	7	6	6	7	5	6	7	7	6	6	6
53	8	7	5	5	6	7	6	7	7	7	6	7	7	7	6
54	6	8	8	7	8	7	8	9	8	7	8	7	6	6	5
55	7	7	8	5	6	6	6	7	7	7	7	6	6	8	7
56	7	8	6	5	6	6	6	8	7	6	8	8	8	7	6
57	7	8	7	7	7	6	6	7	6	6	6	6	8	6	5
58	8	7	8	5	6	6	7	5	6	9	7	6	8	8	8
59	7	6	7	7	8	7	7	8	7	8	9	7	8	6	6
60	8	8	7	6	6	6	7	7	7	6	7	7	8	7	8
61	7	7	6	6	7	6	7	7	8	9	7	8	8	9	6
62	7	8	7	7	8	7	7	8	7	7	6	6	8	7	6
63	8	8	8	6	7	8	11	13	11	8	8	8	7	7	6
64	8	7	8	7	10	19	47	58	36	14	10	8	9	7	6
65	8	7	9	8	10	39	62	62	62	32	9	7	7	8	6
66	5	6	7	7	15	62	62	62	62	25	8	7	8	8	7
67	7	7	8	8	8	31	62	62	62	16	7	6	7	7	6
68	7	7	9	7	7	8	21	30	16	6	6	7	7	7	5
69	6	6	7	7	7	7	8	9	7	7	8	7	8	7	7
70	7	7	8	7	8	7	6	6	5	7	6	6	7	7	6
71	4	6	6	6	7	6	7	7	5	5	7	7	7	7	7
72	6	7	7	7	7	7	6	7	7	6	6	6	6	5	6
73	6	7	8	6	6	5	6	6	5	5	4	5	7	7	6
74	6	6	7	7	6	8	6	7	6	7	7	7	8	8	8
75	7	7	7	7	7	8	7	7	5	6	7	6	7	6	7
76	6	5	6	7	7	6	7	5	5	5	6	7	7	7	6
77	4	7	6	6	6	7	7	7	8	5	7	6	6	7	5
78	7	7	7	7	8	6	7	6	5	5	5	4	6	8	7
79	5	7	7	6	7	6	7	7	8	6	7	7	7	7	7

VIKINC LANCEF * CAMERA * FC28 CMT TIME **C**C** C
DARK CURRENT SUETRACTCR CN L

GREEN OFFSET 2 GAIN4

LINE \ SAMP	390		392		394		396		398		400		402		404
50	1	0	1	2	1	1	1	2	C	1	2	2	1	2	2
51	1	2	1	2	2	2	1	1	1	C	C	1	1	1	1
52	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1
53	0	1	1	1	1	1	1	2	C	C	C	1	1	1	1
54	1	1	2	2	1	1	C	C	C	C	1	C	2	1	1
55	1	1	1	C	1	2	1	1	1	1	1	1	2	2	2
56	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
57	1	1	1	0	1	1	1	1	C	C	1	1	1	1	1
58	1	0	0	1	1	1	1	1	1	C	1	1	1	1	C
59	1	2	1	1	2	1	C	1	1	1	C	C	1	1	1
60	1	1	1	1	1	2	1	1	1	1	1	1	1	1	2
61	1	1	2	2	2	2	2	2	1	1	1	C	1	1	1
62	1	1	1	1	1	1	2	2	1	C	1	C	1	1	2
63	1	0	1	2	2	2	3	4	3	2	1	1	1	C	0
64	1	1	1	2	2	4	11	14	9	3	1	C	1	1	1
65	2	2	2	2	3	12	3C	35	21	6	3	2	2	2	2
66	2	2	2	3	3	12	33	42	31	9	3	2	2	2	2
67	2	2	2	2	3	8	23	25	18	5	2	2	2	2	2
68	2	2	2	2	2	3	7	9	5	2	2	2	2	2	2
69	2	2	2	2	2	2	3	3	2	2	2	1	2	2	2
70	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2
71	1	2	2	2	2	2	2	3	3	2	2	2	2	2	2
72	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
73	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
74	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2
76	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2
77	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
78	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
79	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2
80	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
81	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2
82	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
83	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
84	2	2	2	2	2	2	2	3	2	3	2	2	2	2	2
85	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
86	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2
87	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2
88	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
89	2	2	2	3	2	2	2	3	2	2	2	2	2	2	2
90	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
91	2	2	2	2	2	2	2	2	3	2	2	2	3	2	2
92	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
93	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
94	2	2	2	2	3	2	2	2	2	2	3	2	2	2	2
95	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
96	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
97	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
98	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
99	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

VIKINC LANCER * CAMERA * FC2B GMT TIME **C**C** C
CARK CURRENT SUETRACTCR CN GREEN OFFSET 1 GAIN 2 L

LINE \ SAMP	390		392		394		396		398		400		402		404
50	7	8	6	5	6	7	8	7	7	7	7	7	8	8	7
51	6	6	5	6	6	7	7	8	7	8	9	8	7	6	6
52	7	7	7	6	7	6	6	7	5	6	7	7	6	6	6
53	8	7	5	5	6	7	6	7	7	7	6	7	7	7	6
54	6	8	8	7	8	7	6	9	8	7	8	7	6	6	5
55	7	7	8	5	6	6	6	7	7	7	7	6	6	8	7
56	7	8	6	5	6	6	6	8	7	6	8	8	8	7	6
57	7	8	7	7	7	6	6	7	6	6	6	6	8	6	5
58	8	7	8	5	6	6	7	5	6	9	7	6	8	8	8
59	7	6	7	7	8	7	7	8	7	8	9	7	8	6	6
60	8	8	7	6	6	6	7	7	7	6	7	7	8	7	8
61	7	7	6	6	7	6	7	7	8	9	7	8	8	9	6
62	7	8	7	7	8	7	7	8	7	7	6	6	8	7	6
63	8	8	8	6	7	8	11	13	11	8	8	8	7	7	6
64	8	7	8	7	10	19	47	58	36	14	10	8	9	7	6
65	8	7	9	8	10	39	62	62	62	32	9	7	7	8	6
66	5	6	7	7	15	62	62	62	62	25	8	7	8	8	7
67	7	7	8	8	8	31	62	62	62	16	7	6	7	7	6
68	7	7	9	7	7	6	21	30	16	6	6	7	7	7	5
69	6	6	7	7	7	7	8	9	7	7	8	7	8	7	7
70	7	7	8	7	8	7	6	6	5	7	6	6	7	7	6
71	4	6	6	6	7	6	7	7	5	5	7	7	7	7	7
72	6	7	7	7	7	7	6	7	7	6	6	6	6	5	6
73	6	7	8	6	6	5	6	6	5	5	4	5	7	7	6
74	6	6	7	7	6	8	6	7	6	7	7	7	8	8	8
75	7	7	7	7	7	8	7	7	5	6	7	6	7	6	7
76	6	5	6	7	7	6	7	5	5	5	6	7	7	7	6
77	4	7	6	6	6	7	7	7	8	5	7	6	6	7	5
78	7	7	7	7	8	6	7	6	5	5	5	4	6	8	7
79	5	7	7	6	7	6	7	7	8	6	7	7	7	7	7
80	6	6	7	7	9	7	8	7	7	6	5	5	7	6	6
81	6	6	7	5	6	7	5	6	5	5	7	6	7	7	6
82	5	6	6	6	6	7	7	6	5	6	6	5	6	7	6
83	7	6	6	7	8	7	7	7	6	5	5	5	5	5	7
84	5	7	6	5	7	6	7	7	8	7	8	6	7	7	7
85	6	6	6	6	7	8	8	8	6	6	6	5	7	6	6
86	5	6	7	5	8	7	8	8	6	6	6	6	6	7	6
87	5	5	5	6	6	8	10	10	7	6	7	5	7	6	5
88	8	7	5	7	6	9	10	10	6	6	5	5	5	5	5
89	6	6	8	6	7	7	7	7	7	6	7	7	6	7	6
90	6	5	6	6	6	7	9	8	7	8	7	6	6	6	7
91	6	5	6	6	6	6	7	7	6	6	5	5	5	7	7
92	5	6	5	5	5	6	7	7	7	6	7	6	7	6	5
93	7	7	5	6	7	7	7	7	6	8	5	5	7	6	5
94	6	5	7	5	5	6	7	7	7	7	7	6	6	7	6
95	6	6	6	6	6	6	7	10	6	7	8	6	6	6	5
96	7	7	5	6	7	6	6	5	6	7	7	5	6	5	6
97	5	6	5	5	6	5	7	7	7	7	8	6	6	6	6
98	6	6	7	7	6	7	7	8	7	7	7	6	6	6	6
99	8	7	6	6	8	6	6	7	7	7	6	8	7	7	7

VIKING LANCER *   CAMERA *   FC2B   GMT TIME **C**C**   C
CARK CURRENT SUETRACTCR CN   L

RED OFFSET 1 GAIN 4

LINE \ SAMP	390		392		394		396		398		400		402		404
50	1	1	1	1	2	1	1	1	1	1	1	3	2	2	2
51	1	3	2	1	2	1	1	3	1	1	2	1	2	2	1
52	1	2	2	2	2	1	1	1	1	1	1	1	2	1	2
53	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2
54	2	2	2	2	2	2	2	1	1	1	1	1	2	2	2
55	1	1	1	1	2	2	1	1	1	1	1	1	2	2	2
56	1	1	1	2	1	1	2	2	1	1	1	1	1	1	1
57	2	2	2	2	2	1	1	1	1	1	1	1	1	2	1
58	2	3	1	1	2	2	2	1	1	1	2	2	3	2	2
59	1	2	2	2	2	2	2	2	1	1	1	1	1	2	2
60	1	1	1	1	1	2	2	2	1	1	1	2	2	2	2
61	1	1	1	2	2	2	2	2	2	1	1	2	1	1	1
62	1	1	2	2	2	2	2	2	2	2	1	1	1	1	1
63	1	2	1	1	2	2	3	5	4	3	2	2	2	2	2
64	1	1	2	2	2	5	15	19	12	5	3	2	2	1	1
65	2	2	2	2	2	8	28	40	31	12	3	2	2	2	2
66	2	2	2	2	2	10	33	$\boxed{43}$	33	12	3	2	2	2	2
67	2	2	2	2	2	5	19	26	17	4	2	2	2	2	2
68	2	2	2	2	2	2	4	6	4	2	2	2	2	2	2
69	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
70	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
71	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2
72	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
73	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
74	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	2	2	1	2	2	1	1	1	2
76	2	2	1	2	1	3	2	2	2	2	2	2	2	2	2
77	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2
78	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
79	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C** C L

DARK CURRENT SUBTRACTOR ON RED OFFSET 1 GAIN 2

LINE \ SAMP	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404
50	8	8	8	8	8	8	8	8	8	7	7	7	7	7	7
51	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
52	7	7	7	8	8	8	8	9	8	8	8	7	8	7	7
53	8	8	7	7	8	8	7	8	7	8	8	7	9	8	7
54	7	8	8	7	7	7	8	8	7	8	8	7	8	7	8
55	8	8	8	8	8	7	8	9	8	8	8	7	7	7	7
56	8	8	7	7	8	8	8	8	8	8	8	8	8	8	8
57	7	8	7	8	8	8	8	8	8	8	8	7	8	7	8
58	8	8	8	8	8	7	7	8	7	8	8	7	7	7	9
59	8	8	7	7	7	7	8	8	8	8	7	8	8	8	8
60	8	8	8	8	8	8	8	9	8	8	8	8	8	8	7
61	8	8	8	7	7	8	8	8	8	8	8	8	8	8	8
62	8	7	7	8	7	8	9	10	11	9	9	8	8	8	7
63	8	8	8	8	8	9	13	20	19	14	10	8	8	7	7
64	7	7	7	8	9	20	59	62	51	22	13	9	8	9	7
65	8	8	8	9	10	44	62	62	62	36	13	8	7	7	6
66	8	8	8	8	9	39	62	62	62	45	11	8	8	8	7
67	7	7	8	7	8	20	62	62	62	25	9	8	8	7	7
68	8	7	8	8	8	8	14	23	16	8	8	7	8	7	6
69	8	7	7	7	7	8	8	8	8	8	8	8	8	7	7
70	8	7	8	8	8	8	8	8	8	8	8	8	7	7	7
71	8	8	8	7	7	8	8	8	8	8	8	7	8	8	8
72	8	8	7	7	7	7	7	8	8	8	7	7	8	8	7
73	7	7	7	7	7	7	7	8	7	7	7	7	8	7	7
74	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7
75	8	7	7	7	7	8	7	8	7	7	8	7	8	7	7
76	8	8	8	7	7	7	7	7	7	7	7	8	8	7	7
77	7	7	7	7	7	7	7	8	8	8	8	8	8	8	7
78	7	8	7	7	7	7	7	7	7	7	7	7	8	7	7
79	8	8	7	7	7	7	7	7	7	7	8	7	8	7	7

VIKING LANDER *   CAMERA *   FC28   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   IR 1 OFFSET 1 GAIN 4   L

SAMP	390		392		394		396		398		400		402		404
LINE															
50	1	1	2	2	2	2	2	2	1	2	2	2	1	1	1
51	2	2	2	2	2	2	2	2	1	1	2	1	1	2	2
52	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
53	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2
54	2	2	2	2	1	2	2	2	1	1	1	2	2	2	2
55	1	1	2	2	2	2	2	2	2	2	2	2	2	1	1
56	2	2	2	2	2	2	2	2	1	1	2	1	2	2	1
57	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
58	1	2	2	2	2	2	2	2	2	1	2	1	2	2	1
59	2	2	2	1	2	1	1	2	1	1	1	1	2	2	2
60	1	1	1	1	2	2	2	2	2	2	2	1	2	2	1
61	2	2	2	2	2	2	2	2	2	1	1	1	2	2	1
62	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2
63	1	1	2	2	2	2	2	3	3	2	2	2	1	2	2
64	2	2	2	2	2	2	5	8	7	9	3	2	2	2	2
65	1	1	2	1	2	4	15	24	21	10	4	2	2	1	2
66	2	2	2	1	2	9	25	$\boxed{33}$	27	19	4	3	2	1	1
67	1	1	2	2	2	8	22	28	21	9	4	3	2	2	1
68	1	2	2	2	2	3	8	12	10	5	3	2	2	1	1
69	2	2	2	2	2	2	2	3	3	3	2	2	2	2	1
70	1	1	2	1	2	2	2	2	2	2	2	2	1	2	1
71	2	2	2	2	2	2	2	2	2	2	2	2	1	1	1
72	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
73	1	1	1	1	2	2	2	2	2	2	2	2	2	2	1
74	2	2	2	1	2	2	1	2	1	1	2	1	1	1	1
75	1	1	1	1	1	1	2	2	2	2	2	2	2	2	1
76	2	2	2	2	2	2	2	2	2	2	2	1	2	1	1
77	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2
78	2	1	2	1	1	2	2	2	2	2	2	2	2	1	2
79	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1

VIKING LANDER *   CAMERA *   FC28   GMT TIME **0**0**   C
DARK CURRENT SUBTRACTOR ON   L

IR 1 OFFSET 1 GAIN 2

LINE \ SAMP	390		392		394		396		398		400		402		404
50	6	6	6	6	7	7	7	7	7	7	6	6	7	7	7
51	7	7	6	6	6	6	7	6	6	6	6	6	6	7	6
52	6	6	6	6	5	7	7	7	7	7	7	6	6	6	6
53	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6
54	7	6	6	6	6	6	6	7	6	7	7	7	7	7	7
55	6	5	6	6	7	7	7	8	7	8	7	6	6	7	6
56	7	7	6	6	7	6	6	6	7	6	7	6	6	6	6
57	6	6	6	6	6	6	7	7	7	6	6	7	7	7	5
58	7	7	7	6	7	7	7	8	7	7	6	6	7	6	6
59	7	7	6	6	6	7	7	7	6	7	7	6	7	7	6
60	7	5	6	6	7	7	7	7	7	7	8	7	6	6	6
61	7	7	6	6	6	6	7	7	7	6	6	6	6	6	6
62	7	7	6	5	6	7	7	7	8	8	7	7	7	7	6
63	7	7	7	7	7	8	9	11	11	10	8	7	7	7	6
64	7	7	7	7	7	9	21	34	31	19	13	9	7	7	6
65	8	7	7	7	9	24	62	62	62	39	18	11	8	7	6
66	7	7	7	7	8	31	62	62	62	45	17	10	7	6	6
67	7	7	7	7	8	23	62	62	62	45	18	11	9	7	7
68	8	7	9	8	9	12	20	45	42	20	13	10	8	7	7
69	8	8	7	7	7	8	10	12	11	11	9	9	8	8	7
70	8	7	8	6	7	7	8	9	8	9	9	9	8	8	7
71	7	7	8	7	7	7	7	8	7	7	8	7	7	6	7
72	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7
73	8	8	7	7	8	7	7	7	8	8	7	7	7	7	6
74	7	8	7	6	7	7	7	8	7	7	7	7	7	7	7
75	7	8	7	6	7	7	7	7	7	7	8	8	8	7	6
76	7	7	7	8	7	7	7	7	7	6	7	8	8	7	7
77	7	7	7	6	7	7	7	6	7	7	7	8	7	7	7
78	7	7	8	6	7	7	7	8	7	8	8	7	8	7	6
79	8	7	8	7	6	7	7	7	7	7	7	7	8	7	8

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C**

DARK CURRENT SUBTRACTOR ON IR2 OFFSET 1 GAIN 4

LINE \ SAMP	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404
50	2	2	2	2	2	2	1	2	2	1	2	1	2	2	2
51	2	2	2	1	2	2	1	2	1	2	2	2	2	1	2
52	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
53	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
54	1	2	2	2	1	1	2	2	1	2	2	2	2	2	2
55	2	2	2	2	2	2	2	2	2	1	2	1	2	1	2
56	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2
57	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
58	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
59	1	2	1	2	2	2	1	2	2	2	2	2	2	2	2
60	2	2	2	2	2	2	1	2	2	2	2	1	2	2	1
61	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2
62	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
63	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
64	2	2	2	1	2	3	5	6	4	2	2	2	2	2	2
65	1	2	2	2	2	6	14	17	12	4	2	1	2	1	1
66	1	2	2	2	2	8	21	$\boxed{27}$	20	8	2	1	2	2	1
67	2	1	2	2	3	7	18	25	18	7	2	2	2	2	1
68	1	2	2	2	2	5	10	12	7	3	2	2	1	1	1
69	1	1	1	1	2	2	3	3	2	2	2	1	1	1	2
70	1	1	2	2	2	2	2	2	2	2	2	1	1	1	1
71	1	1	2	2	2	3	1	2	1	1	1	1	1	1	1
72	1	1	1	1	1	2	2	2	2	2	2	1	2	2	1
73	1	1	1	2	2	2	2	2	1	1	1	1	2	1	1
74	1	1	1	1	1	2	1	1	0	0	1	1	2	1	1
75	1	1	1	1	2	1	2	1	1	1	2	1	2	1	1
76	1	1	1	1	2	2	2	1	0	1	1	1	1	1	1
77	0	1	2	2	1	1	2	1	1	2	2	2	1	1	2
78	1	1	1	1	2	2	2	2	1	1	1	1	1	1	1
79	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

VIKING LANDER * CAMERA * FC2B GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON L

IR2 OFFSET 1 GAIN 2

LINE \ SAMP	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404
50	6	7	8	6	8	7	8	7	6	7	6	6	7	7	8
51	6	7	7	6	6	7	7	8	5	5	7	7	8	7	8
52	6	5	7	8	8	7	7	7	7	7	6	6	7	6	6
53	7	7	8	8	8	6	7	6	6	5	5	5	7	7	7
54	7	7	7	6	7	8	7	9	8	7	7	6	7	8	7
55	6	6	7	7	7	8	8	7	7	6	7	7	7	7	6
56	7	6	7	7	6	6	7	8	6	5	6	6	7	7	7
57	6	6	6	7	7	7	7	7	7	7	6	6	7	7	6
58	7	7	7	7	7	8	7	7	6	6	6	4	6	7	7
59	6	7	6	6	7	7	8	8	7	7	7	7	6	7	8
60	6	6	6	7	7	7	8	9	7	6	7	7	7	6	7
61	7	7	6	6	7	6	7	7	6	7	7	5	7	7	6
62	6	6	6	7	8	8	7	7	7	8	7	6	7	7	6
63	7	6	7	8	8	8	9	9	8	7	6	6	6	7	8
64	6	6	7	7	8	10	17	24	18	11	8	8	7	6	8
65	6	7	7	7	11	19	50	62	56	23	9	7	7	7	6
66	7	7	7	7	11	40	62	62	62	29	9	6	7	7	8
67	5	5	6	7	9	33	62	62	62	26	10	7	7	7	6
68	8	8	8	7	10	16	36	48	38	17	9	7	6	6	7
69	6	8	7	7	8	9	11	13	11	10	9	8	8	7	8
70	6	7	7	7	8	9	10	9	9	9	7	6	7	7	7
71	6	7	7	7	7	7	7	7	7	6	7	6	7	8	7
72	6	6	5	6	7	7	7	8	8	7	7	7	8	6	6
73	7	8	7	7	7	8	8	8	7	6	6	5	6	6	6
74	7	7	7	6	6	7	8	7	6	8	8	7	7	7	7
75	5	7	6	6	7	8	8	8	8	7	7	7	7	6	7
76	7	7	7	7	7	6	6	8	7	7	6	6	7	6	7
77	6	6	6	6	7	7	8	7	7	8	7	7	8	6	6
78	8	7	7	7	8	8	7	7	7	6	7	6	7	6	6
79	6	7	6	7	6	7	7	8	6	7	8	8	8	6	7

DARK CURRENT SUBTRACTOR ON GMT TIME **C**C**

C
L

VIKING LANDER * CAMERA * FC2B
DARK CURRENT SUBTRACTOR ON GMT TIME **C**C**

C
L

JR3 OFFSET 1 GAIN 4

LINE \ SAMP	390		392		394		396		398		400		402		404
50	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
51	1	1	2	2	2	1	1	2	1	2	2	2	2	2	2
52	2	2	1	1	1	2	1	2	2	2	2	2	1	1	1
53	1	2	1	1	1	1	1	2	1	2	2	2	1	1	2
54	1	2	1	1	2	2	2	2	2	2	2	2	2	1	1
55	2	2	1	2	2	2	2	2	2	2	2	1	2	1	1
56	1	2	2	2	2	2	1	2	2	2	2	2	2	2	1
57	3	2	2	2	2	2	2	2	2	2	2	2	2	1	2
58	1	1	1	1	1	1	1	2	2	2	2	1	1	1	1
59	1	1	1	1	2	1	2	2	2	2	1	2	2	3	1
60	2	2	2	1	2	2	2	2	2	2	1	2	1	1	2
61	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2
62	2	2	2	1	2	1	2	2	2	2	2	2	2	1	2
63	1	2	2	2	2	2	2	2	2	2	2	2	2	1	1
64	1	2	2	1	2	2	3	5	4	3	2	2	2	2	2
65	2	2	2	2	2	4	12	17	13	6	3	2	2	1	2
66	2	2	2	2	2	8	22	30	23	10	4	2	2	2	2
67	2	2	1	2	2	6	19	25	25	12	4	2	2	2	2
68	2	2	2	2	2	3	10	16	13	6	3	2	2	2	1
69	2	2	2	2	2	2	4	5	4	3	3	2	2	1	2
70	2	2	2	2	2	2	2	3	3	2	2	2	2	2	2
71	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
72	2	2	1	1	2	2	2	2	2	2	2	2	2	2	1
73	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1
74	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
76	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
77	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
78	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1
79	2	2	2	2	1	2	2	2	2	2	2	2	2	2	1

VIKING LANDER *   CAMERA *   FC2B   CMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   L

IR3 OFFSET 1 GAIN2

SAMP	390		392		394		396		398		400		402		404
LINE															
50	8	8	8	7	7	7	7	7	7	8	8	8	8	9	8
51	8	8	8	7	8	8	8	8	8	8	8	7	7	7	7
52	8	7	7	7	7	7	7	8	7	8	8	8	8	8	8
53	8	8	7	7	8	8	7	8	8	8	8	7	8	8	8
54	8	9	8	7	8	7	7	8	7	9	8	8	8	8	8
55	8	8	8	7	7	7	7	8	8	8	8	8	8	7	8
56	7	8	8	8	7	7	7	8	8	7	8	8	8	7	7
57	8	7	7	7	8	7	6	7	7	8	7	7	8	8	7
58	8	9	8	7	8	8	8	8	7	8	7	8	8	7	7
59	8	8	8	7	7	7	7	8	7	9	9	8	8	8	8
60	7	7	8	8	7	8	8	8	8	8	8	8	8	9	7
61	8	7	8	8	8	8	8	7	8	7	7	8	8	7	8
62	8	9	7	7	7	7	8	8	8	8	8	8	7	8	8
63	8	8	8	8	8	8	9	9	10	9	9	9	8	8	8
64	7	8	8	8	7	8	15	20	17	11	9	8	8	8	8
65	7	7	8	9	9	20	55	62	46	20	11	8	8	8	7
66	7	8	8	8	9	26	62	62	62	47	15	9	7	7	6
67	7	8	8	8	9	26	62	62	62	46	18	11	9	7	8
68	7	7	8	8	9	12	36	62	60	34	16	12	9	8	7
69	7	9	7	9	8	9	13	19	20	15	12	9	9	8	7
70	7	8	8	7	7	8	10	10	10	11	11	9	8	8	7
71	7	8	7	8	7	8	9	9	9	8	8	6	8	7	7
72	8	7	8	7	8	7	7	8	7	7	8	7	7	8	6
73	7	7	7	8	8	7	7	7	8	7	7	7	7	8	7
74	8	8	8	7	8	7	7	7	7	7	7	6	7	8	7
75	6	8	7	7	6	6	7	8	7	7	8	8	8	8	7
76	8	7	8	7	7	7	7	7	7	6	6	7	8	8	7
77	8	7	7	6	7	7	7	7	7	7	6	7	8	7	7
78	7	8	7	7	7	9	7	7	6	7	8	8	8	7	7
79	7	8	8	7	7	6	8	7	7	7	7	8	7	8	8

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C**

VIKING LANDER * CAMERA * FC2B GMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON

SURVEY OFFSET 1 GAIN 5

LINE \ SAMP	390		392		394		396		398		400		402		40
50	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
51	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
52	0	0	0	0	C	C	C	C	C	C	C	C	C	C	
53	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
54	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
55	0	0	0	0	C	C	C	C	C	C	C	C	C	C	
56	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
57	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
58	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
59	0	0	0	0	C	C	C	C	C	C	C	C	C	C	
60	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
61	0	0	0	C	C	C	C	C	C	C	C	C	C	C	
62	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
63	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
64	0	0	0	0	0	C	C	C	C	C	C	C	C	C	
65	0	0	0	0	0	C	1	4	4	1	C	C	C	C	
66	0	0	0	0	0	C	6	15	16	8	C	C	C	C	
67	0	0	0	0	0	0	9	21	$\boxed{22}$	12	2	C	C	C	0
68	0	0	0	0	C	C	6	15	16	7	C	C	C	C	0
69	0	0	0	0	C	C	1	5	4	1	C	C	C	C	0
70	0	0	0	0	C	C	C	C	C	C	C	C	C	C	0
71	0	0	0	0	0	C	C	C	C	C	C	C	C	C	0
72	0	0	0	0	C	C	C	C	C	C	C	C	C	C	0
73	0	0	0	0	0	C	C	C	C	C	C	C	C	C	0
74	0	0	0	0	C	C	C	C	C	C	C	C	C	C	0
75	0	0	0	0	0	C	C	C	C	C	C	C	C	C	0
76	0	0	0	C	C	C	C	C	C	C	C	C	C	C	0
77	0	0	0	0	0	C	C	C	C	C	C	C	C	C	0
78	0	0	0	C	C	C	C	C	C	C	C	C	C	C	0
79	0	0	0	0	C	C	C	C	C	C	C	C	C	C	0

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VIKING LANDER * CAMERA * FC2B CMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON

C
L

SURVEY OFFSET 1 GAIN 3

LINE \ SAMP	390		392		394		396		398		400		402		404
50	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
51	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
52	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4
53	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
54	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4
55	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
56	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
57	4	4	4	4	4	4	4	4	4	4	4	3	4	4	3
58	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
59	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
60	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
61	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
62	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
63	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
64	4	4	4	4	4	4	5	16	19	7	4	4	4	4	4
65	4	4	4	4	4	5	29	62	62	29	5	4	4	4	4
66	3	4	4	4	4	7	44	62	62	43	6	4	4	4	4
67	4	4	4	4	4	5	30	62	62	28	5	4	4	4	4
68	4	4	4	4	4	4	7	19	19	7	4	4	4	4	4
69	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
71	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
72	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
73	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
74	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
75	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
76	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
77	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
78	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
79	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 1/31/75

CALIBRATION RUN COLOR RESPONSE vs ELEVATION ANGLE, FC-2B CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Table I: Raw data from the color response test consisting of mean DN and standard deviation for a 3x3 pixel area centered on the image of the MMA radiometric source with a 2 cm aperture. The source was imaged at three different elevation pointing angles for each channel.

Graph I and II: Plots of data from Table I.

Results Summary attached.

TEST DESCRIPTION The MMA radiometric source with a 2 cm aperture was imaged by the infrared and visual color channels at three different pointing angles (0°, +10°, -30°). The swing fixture was used to offset the elevation angle.

DATA PROCESSING DESCRIPTION The mean DN and standard deviation was computed for a 3x3 pixel area centered on the image.

ANALYST Michael E Morrill

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

Analysis of this data shows no color response vs. swing fixture angle effect greater than 4.8%. Comparison of contamination cover open test data for SPARE, FC-1B, FC-2A and FC-2B show no correlations.

TABLE I

COLOR RESPONSE vs. SWING FIXTURE ANGLE

TAPE: VIK235-D

CAMERA: FC-2B

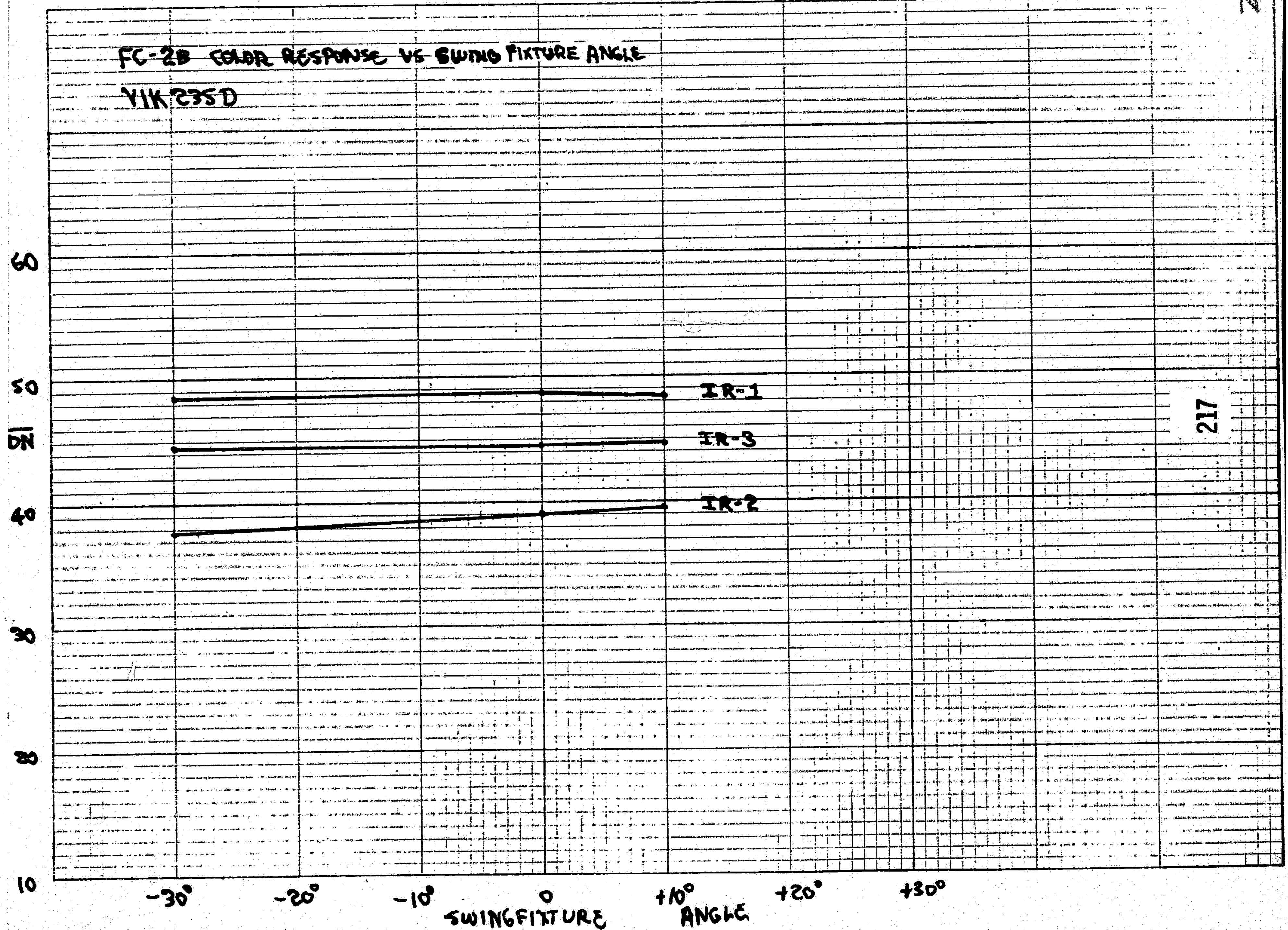
FILES 1-21

RAW DATA

CHAN.	ANGLE	OFFSET	GAIN	$\overline{DN}$	σ	PSA TEMP °C	FILE
RED	0°	1	4	56.778	0.441	28	1
BLUE	0°	1	4	35.889	0.333	26	2
GREEN	0°	1	4	53.333	0.500	26	3
IR1	0°	1	4	48.778	0.667	28	4
IR2	0°	1	4	39.000	0.707	28	5
IR3	0°	1	4	44.444	0.527	28	6
SURVEY	0°	1	4	52.444	0.527	28	7
RED	+10°	1	4	56.667	0.500	28	8
BLUE	+10°	1	4	36.000	0.000	28	9
GREEN	+10°	1	4	54.556	0.527	28	10
IR1	+10°	1	4	48.333	0.707	28	11
IR2	+10°	1	4	39.667	0.500	28	12
IR3	+10°	1	4	44.778	0.667	28	13
SURVEY	+10°	1	4	52.333	0.707	28	14
RED	-30°	1	4	57.333	0.500	28	15
BLUE	-30°	1	4	36.778	0.441	28	16
GREEN	-30°	1	4	54.556	0.527	28	17
IR1	-30°	1	4	48.333	0.500	28	18
IR2	-30°	1	4	37.778	0.667	28	19
IR3	-30°	1	4	44.556	0.527	28	20
SURVEY	-30°	1	4	52.667	0.500	28	21

10 X 10 TO THE INCH 46 0702

KEUFFEL & ESSER CO.



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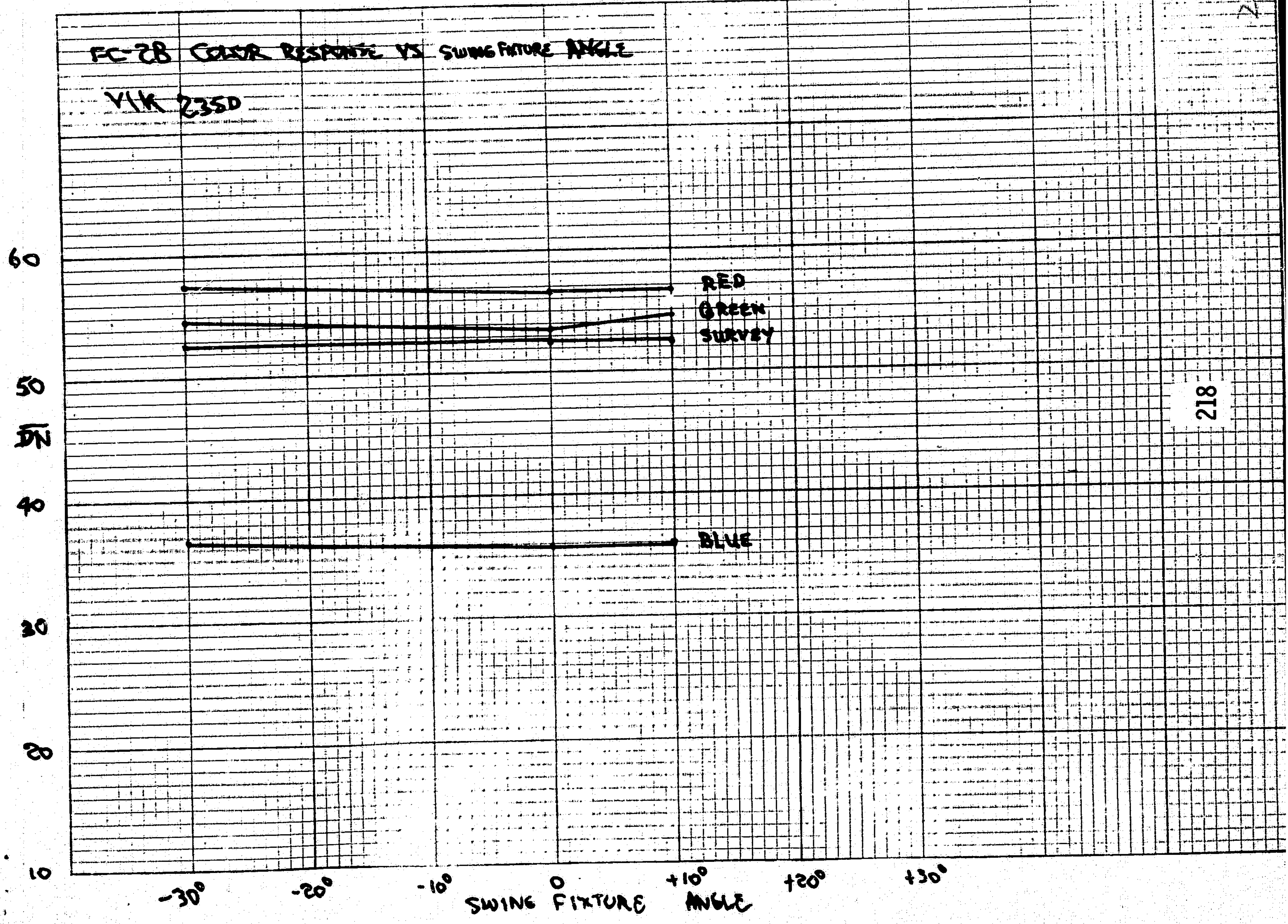

FC-2B COLOR RESPONSE VS SWING FIXTURE ANGLE
VIK 235D
RED
GREEN
SURVEY
BLUE
60
50
DN
40
30
20
10
-30°
-20°
-10°
0
+10°
+20°
+30°
SWING FIXTURE ANGLE

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Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 1/5/75

CALIBRATION RUN INTERNAL CAL. THERMAL CAL FC-2B

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of Internal Cal #2 and Cal #3 for every diode at -39°C, -27°C and +12°C.

TEST DESCRIPTION Internal calibrate source at level 2 and level 3 was selected for 3 lines by each diode at 3 temperatures in the Thermal Vacuum chamber.

DATA PROCESSING DESCRIPTION Mean DN and σ were listed for the last 100 samples of the third line in each PDF.

ANALYST Michael E. Morrill

APPROVAL Michael R. Wolff

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TABLE I

FC-2B Internal Calibration Thermal Cal Test

VIK248D

CAL #	CHAN	OFF	GAIN	$\overline{DN}$	σ	PSA TEMP °C	PDF
2	BB1	1	1	28.170	0.917	-39	31
3	BB1	1	2	29.030	0.458	-39	32
2	BB2	1	1	28.020	0.980	-39	33
3	BB2	1	2	28.510	0.520	-39	34
2	BB3	1	1	26.920	1.146	-39	35
3	BB3	1	2	26.990	0.671	-39	36
2	BB4	1	1	27.860	0.949	-39	37
3	BB4	1	2	27.610	0.547	-39	38
2	BLUE	1	0	36.210	2.355	-39	39
3	BLUE	1	1	25.490	1.118	-39	40
2	GREEN	1	0	40.830	2.604	-39	41
3	GREEN	1	1	33.350	1.307	-39	42
2	RED	1	1	28.750	0.536	-39	43
3	RED	1	2	32.490	0.501	-39	44
2	IR1	1	1	26.770	0.958	-39	45
3	IR1	1	2	23.120	0.475	-39	46
2	IR2	1	1	20.800	1.087	-39	47
3	IR2	1	2	13.830	0.649	-39	48
2	IR3	1	1	23.550	0.888	-39	49
3	IR3	1	2	14.400	0.566	-39	50
2	SURVEY	1	1	26.900	0.388	-39	51
3	SURVEY	1	2	27.020	0.202	-39	52

TABLE II

FC-2B Internal Calibration Thermal Cal Test

VIK248D

CAL #	CHAN	OFF	GAIN	$\overline{DN}$	σ	PSA TEMP °C	PDF
2	BB1	1	1	28.470	0.742	-27	96
3	BB1	1	2	29.430	0.588	-27	97
2	BB2	1	1	28.520	0.843	-27	98
3	BB2	1	2	28.770	0.467	-27	99
2	BB3	1	1	28.160	1.112	-27	100
3	BB3	1	2	28.100	0.539	-27	101
2	BB4	1	1	27.790	0.792	-27	102
3	BB4	1	2	27.670	0.617	-27	103
2	BLUE	1	0	35.970	2.317	-27	104
3	BLUE	1	1	26.710	1.161	-27	105
2	GREEN	1	0	37.790	2.555	-27	106
3	GREEN	1	1	34.550	1.236	-23	107
2	RED	1	1	29.730	0.527	-25	108
3	RED	1	2	32.210	0.409	-27	109
2	IR1	1	1	26.750	0.876	-25	110
3	IR1	1	2	22.650	0.498	-25	111
2	IR2	1	1	21.470	0.900	-27	112
3	IR2	1	2	14.830	0.530	-25	113
2	IR3	1	1	22.530	0.793	-25	114
3	IR3	1	2	14.940	0.465	-25	115
2	SURVEY	1	1	27.490	0.520	-25	116
3	SURVEY	1	2	27.000	0.000	-25	117

TABLE III

FC-2B Internal Calibration Thermal Cal Test

VIK248D

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	PSA TEMP °C	PDF
2	BB1	1	1	30.220	0.783	+12	31
3	BB1	1	2	29.460	0.499	+12	32
2	BB2	1	1	30.900	0.794	+12	33
3	BB2	1	2	29.320	0.467	+12	34
2	BB3	1	1	29.110	1.131	+12	35
3	BB3	1	2	27.580	0.651	+12	36
2	BB4	1	1	29.560	0.920	+12	37
3	BB4	1	2	27.930	0.553	+12	38
2	BLUE	1	0	35.760	2.333	+12	39
3	BLUE	1	1	27.330	1.021	+12	40
2	GREEN	1	0	38.920	2.407	+12	41
3	GREEN	1	1	35.600	1.184	+12	42
2	RED	1	1	30.970	0.520	+12	43
3	RED	1	2	32.070	0.326	+12	44
2	IR1	1	1	28.300	0.878	+12	45
3	IR1	1	2	23.760	0.493	+12	46
2	IR2	1	1	22.620	0.914	+12	47
3	IR2	1	2	15.090	0.512	+12	48
2	IR3	1	1	24.550	0.830	+12	49
3	IR3	1	2	15.830	0.511	+12	50
2	SURVEY	1	1	29.350	0.478	+12	51
3	SURVEY	1	2	27.530	0.499	+12	52

INTERNAL CALIBRATE T.V. #2 CAMERA FC2B

OFFSET 1 TAPE VIK 248 D

DIODE	TEMP	GAIN	$\overline{DN}$	σ	PDF	CAL
BB1	-39	1	28.170	0.917	31	2
		2	29.030	0.458		3
BB2		1	28.020	0.980		2
		2	28.510	0.520		3
BB3		1	26.920	1.146		2
		2	26.990	0.671		3
BB4		1	27.560	0.949		2
		2	27.610	0.547		3
BLUE		0	36.210	2.355		2
		1	25.490	1.118		3
GREEN		0	40.830	2.604		2
		1	33.350	1.307		3
RED		1	28.750	0.536		2
		2	32.490	0.501		3
IR1		1	26.770	0.958		2
		2	23.120	0.475		3
IR2		1	20.800	1.087		2
		2	13.830	0.649		3
IR3		1	23.550	0.888		2
		2	14.400	0.566		3
SURVEY		1	26.900	0.388		2
		2	27.020	0.25[illegible]	52	3

INTERNAL CALIBRATE T.V. #2 CAMERA FC2B
TAPE VIK 248 D

DIODE	TEMP	GAIN	$\overline{DN}$	σ	PDF	CAL
BB1	-27	1	28.470	0.742	96	2
		2	29.430	0.588		3
BB2		1	28.520	0.843		2
		2	28.770	0.467		3
BB3		1	28.160	1.112		2
		2	28.100	0.539		3
BB4		1	27.790	0.792		2
		2	27.670	0.617		3
BLUE		0	35.970	2.317		2
		1	26.710	1.161		3
GREEN		0	37.790	2.555		2
	-23	1	34.550	1.236		3
RED	-25	1	29.730	0.527		2
	-27	2	32.210	0.409		3
IR1	-25	1	26.750	0.876		2
	-25	2	22.650	0.498		3
IR2	-27	1	21.470	0.900		2
	-25	2	14.830	0.530		3
IR3		1	22.530	0.793		2
		2	14.940	0.465		3
SURVEY		1	27.~~480~~ .490	0.520		2
		2	27.000	0.0	117	3

INTERNAL CALIBRATE T.V. #2 CAMERA FC2B

OFFSET 1 TAPE VIK 249 D

DIODE	TEMP	GAIN	$\overline{DN}$	σ	PDF	CAL		
BB1	12	1	30.220	0.783	31	2		
		2	29.460	0.499		3		
BB2		1	30.900	0.794		2		
		2	29.320	0.467		3		
BB3		1	29.110	1.131		2		
		2	27.580	0.651		3		
BB4		1	29.560	0.920		2		
		2	27.930	0.553		3		
BLUE		0	35.760	2.333		2		
		1	27.330	1.021		3		
GREEN		0	38.920	2.407		2		
		1	35.600	1.184		3		
RED		1	30.970	0.520		2		
		2	32.070	0.326		3		
IR1		1	28.300	0.878		2		
		2	23.760	0.493		3		
IR2		1	22.620	0.914		2		
		2	15.090	0.512		3		
IR3		1	24.550	0.830		2		
		2	15.830	0.511		3		
SURVEY		1	29.350	0.478		2		
		2	27.530	0.499	52	3		

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 11/18/74

CALIBRATION RUN FC-2B GAIN TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Plots of DN vs. voltage input for all six gain settings and three temperatures.

Tables of the plotted values. Plots of gain percent vs. temperature.

Results summary attached.

TEST DESCRIPTION Various voltages were input to the video amplifier directly via the test connector. 2.5° PDF's were generated at each of five voltage levels for all gain settings and three temperatures.

DATA PROCESSING DESCRIPTION Mean DN and standard deviation were calculated for the 30x30 pixel area (total = 900 pixels) starting at line 80 and sample 200. Linear least squares was used to determine the slope of DN vs. voltage relationship. 90 PDF's were processed.

ANALYST Michael Edward Morrill

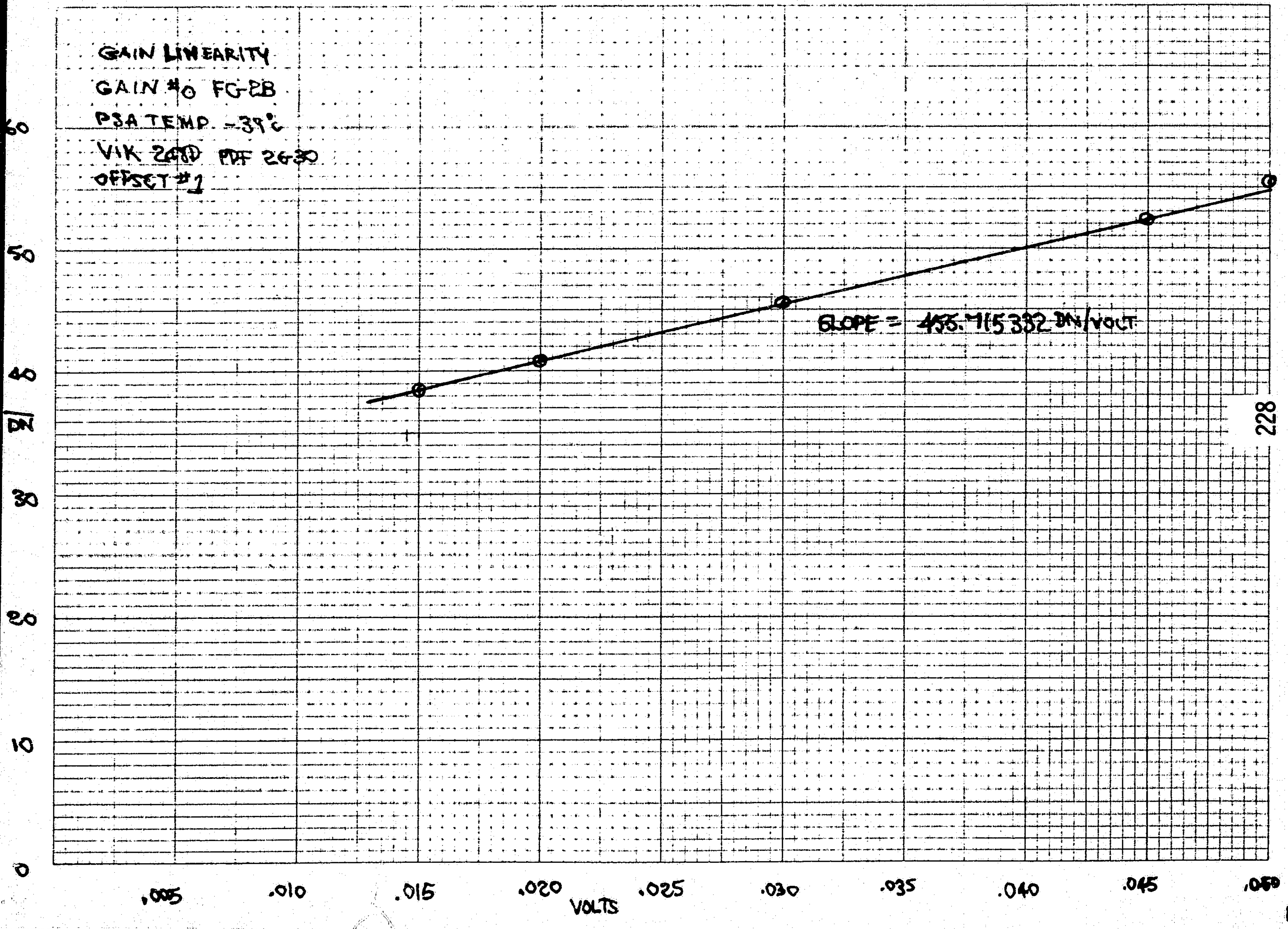
APPROVAL Michael R Wolf

2..

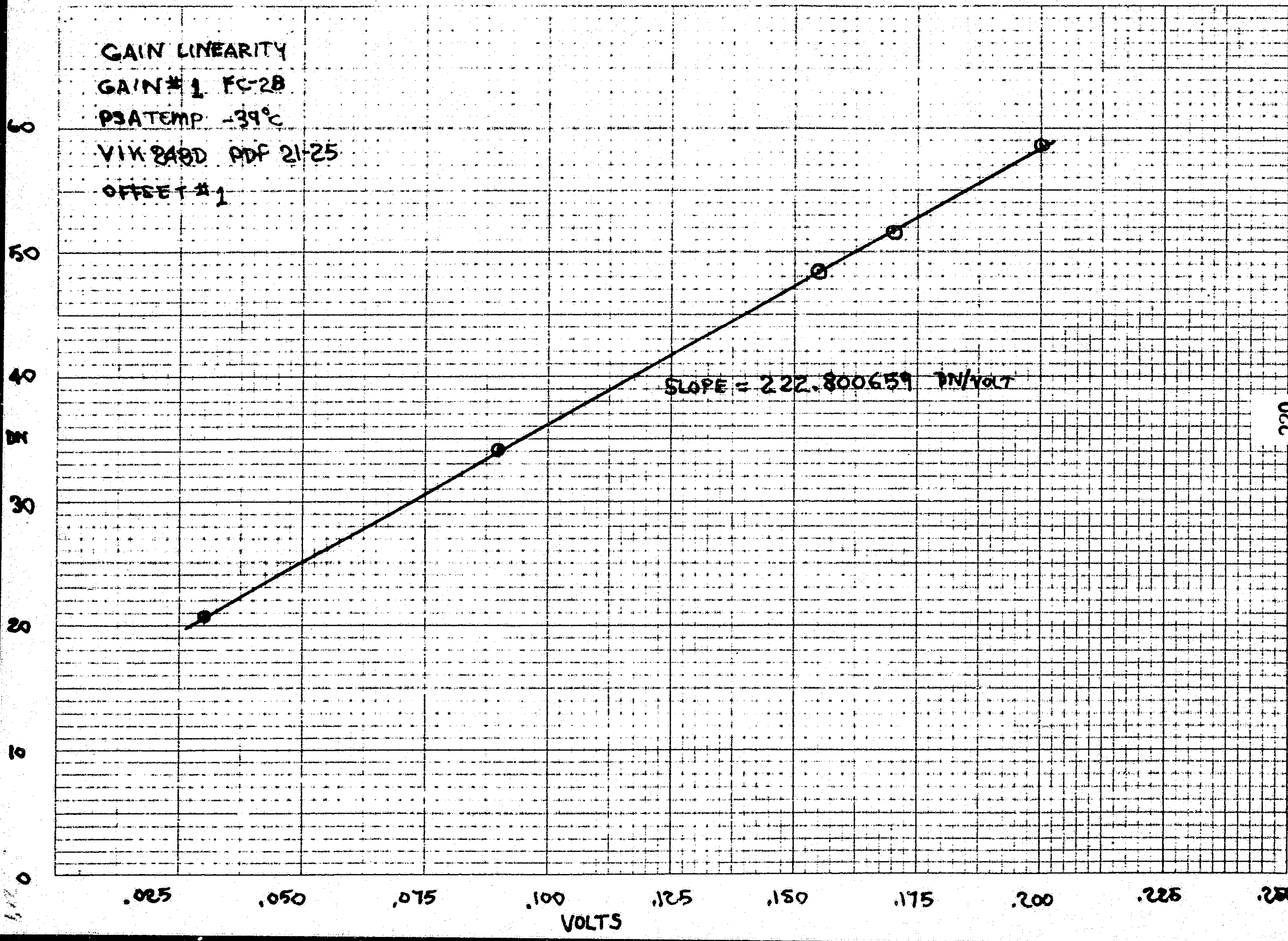
RESULTS SUMMARY:

The Thermal Vac Gain Test data for FC-2B is excellent. The σ's range from 0.0 to 0.6 indicating very low noise in Gain tests. Linear least squares analysis for each test to obtain a best fit slope value also showed very low scatter of the data points. Only one point was discarded due to partial saturation.

The temperature variation of the % Gain is -4, -6% at Gain #0. All other gains have % variations of 1.8% or less. -4% to -10%


GAIN LINEARITY
GAIN #0 FG-2B
PSA TEMP -39°C
VIK ~~2670~~ PDF 2630
OFFSET #1
SLOPE = 455.415332 DN/VOLT
DN
60
50
40
30
20
10
0
.005
.010
.015
.020
.025
.030
.035
.040
.045
.050
VOLTS

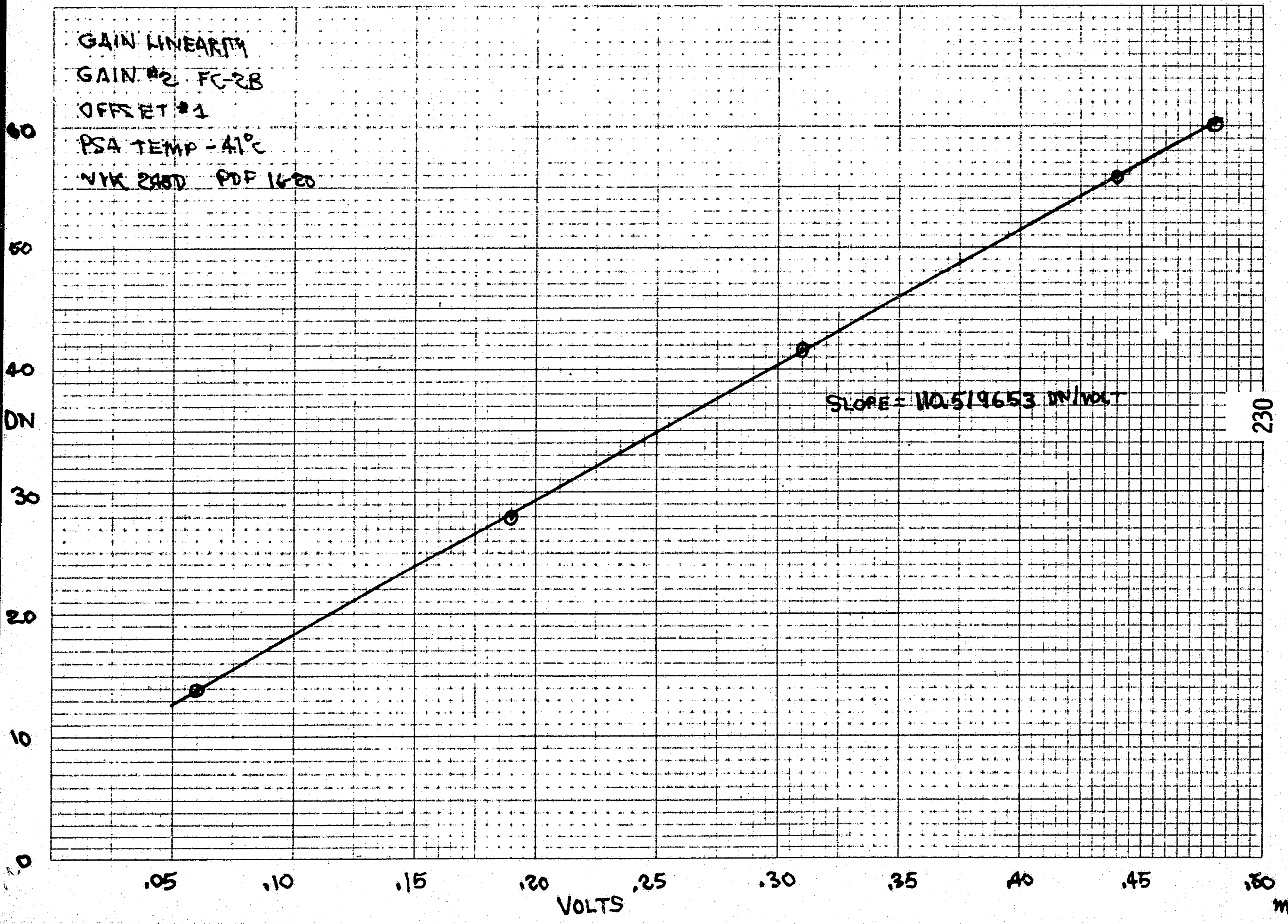
228


GAIN LINEARITY
GAIN #1 FC-28
PSATEMP -39°C
VIK 248D PDF 21-25
OFFSET #1
SLOPE = 222.800659 DN/VOLT
60
50
40
DN
30
20
10
0
.025
.050
.075
.100
.125
.150
.175
.200
.225
.250
VOLTS

229

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.



230

NO. 340A-10 DIETZGEN GRAPH PAPER
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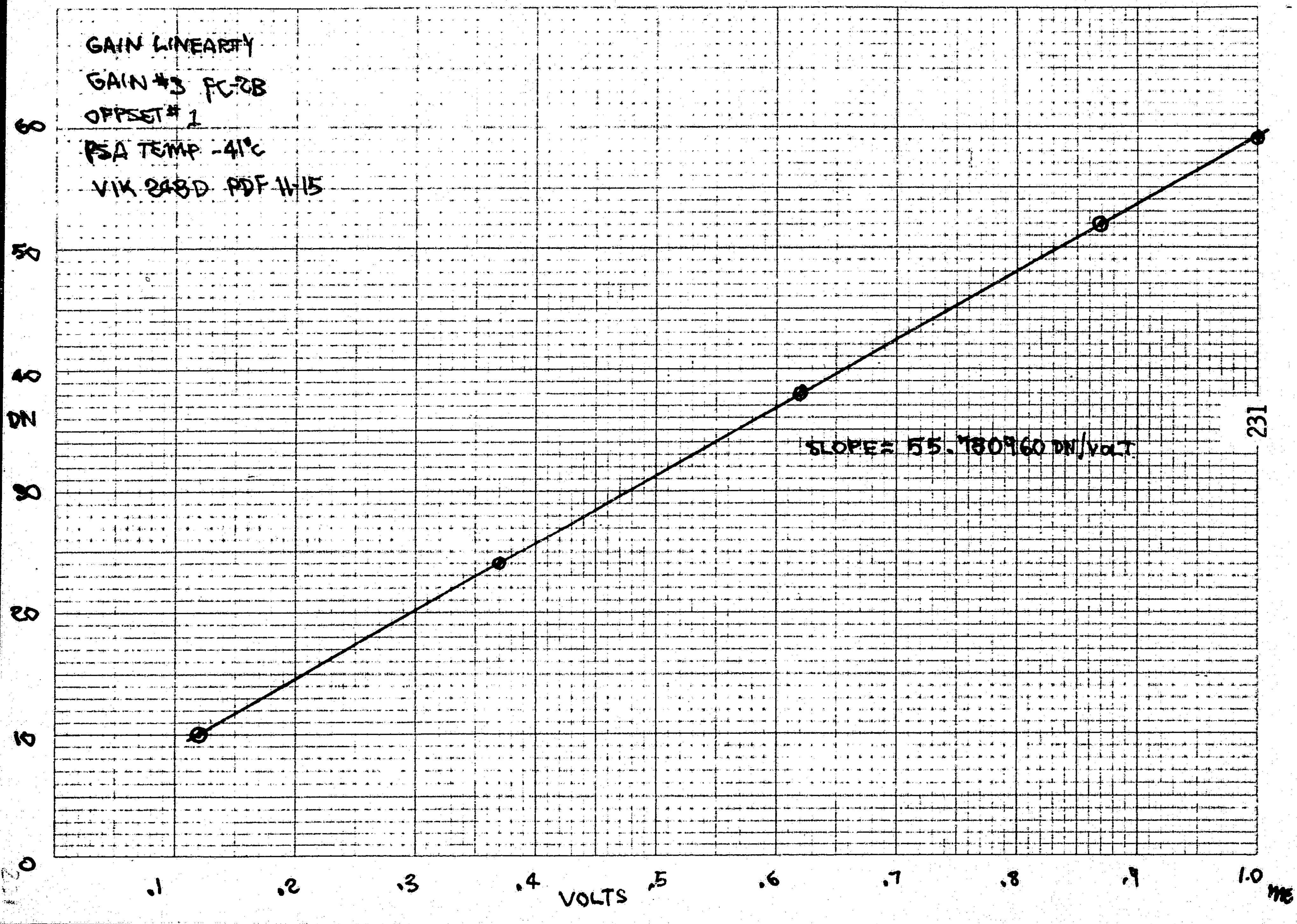

231

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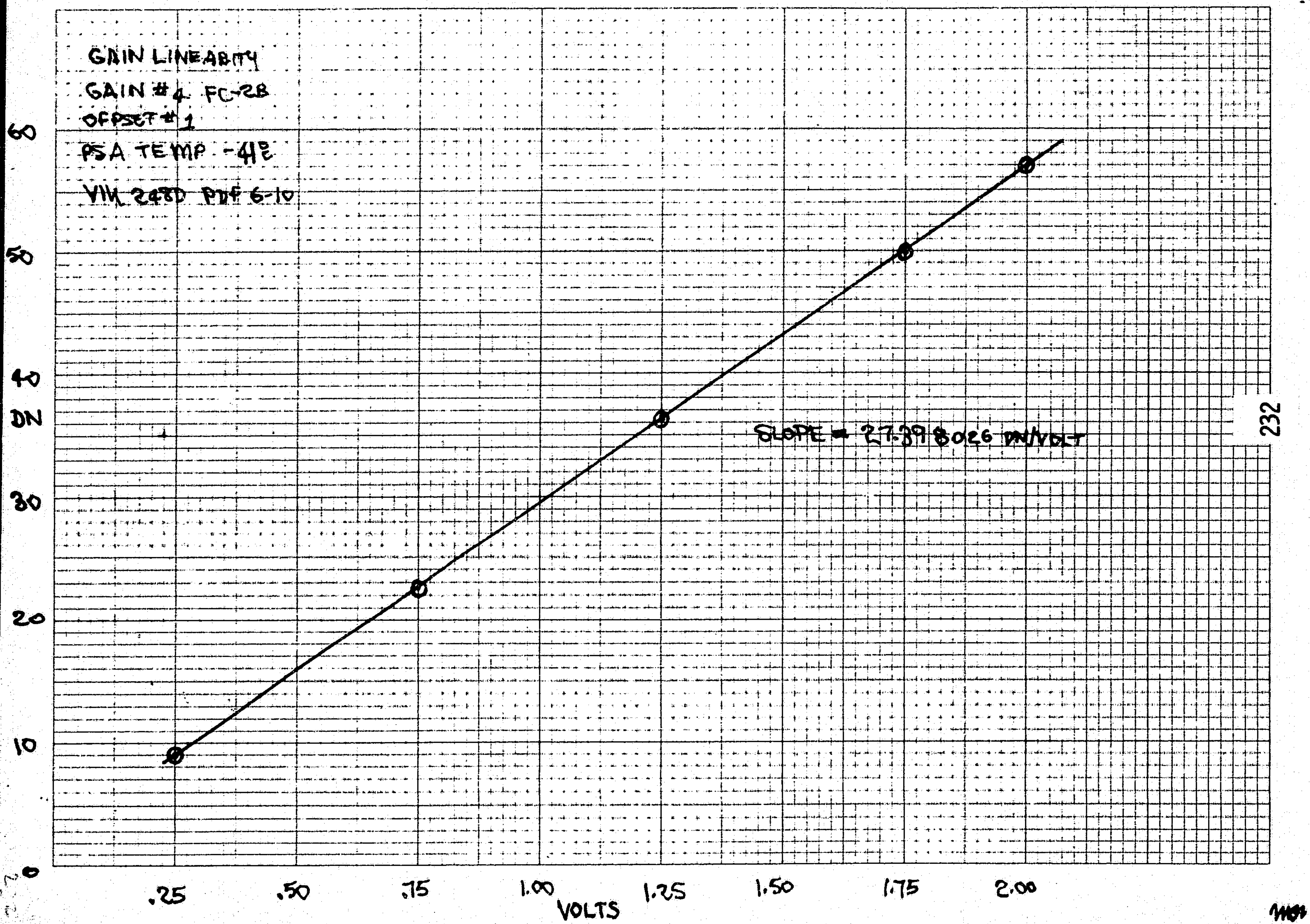
MADE IN U. S. A.



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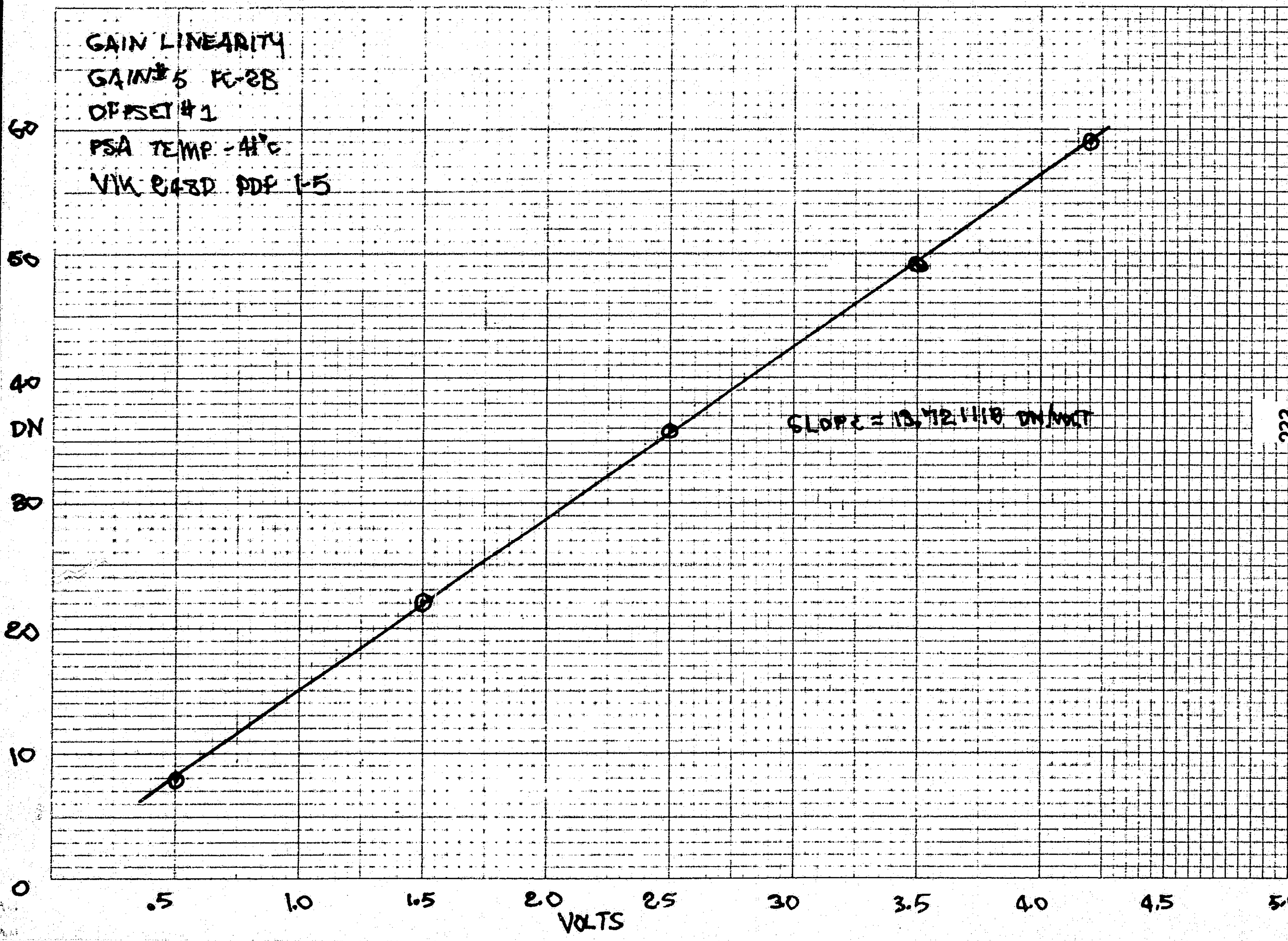
MADE IN U.S.A.



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EUGENE DIETZGEN CO.
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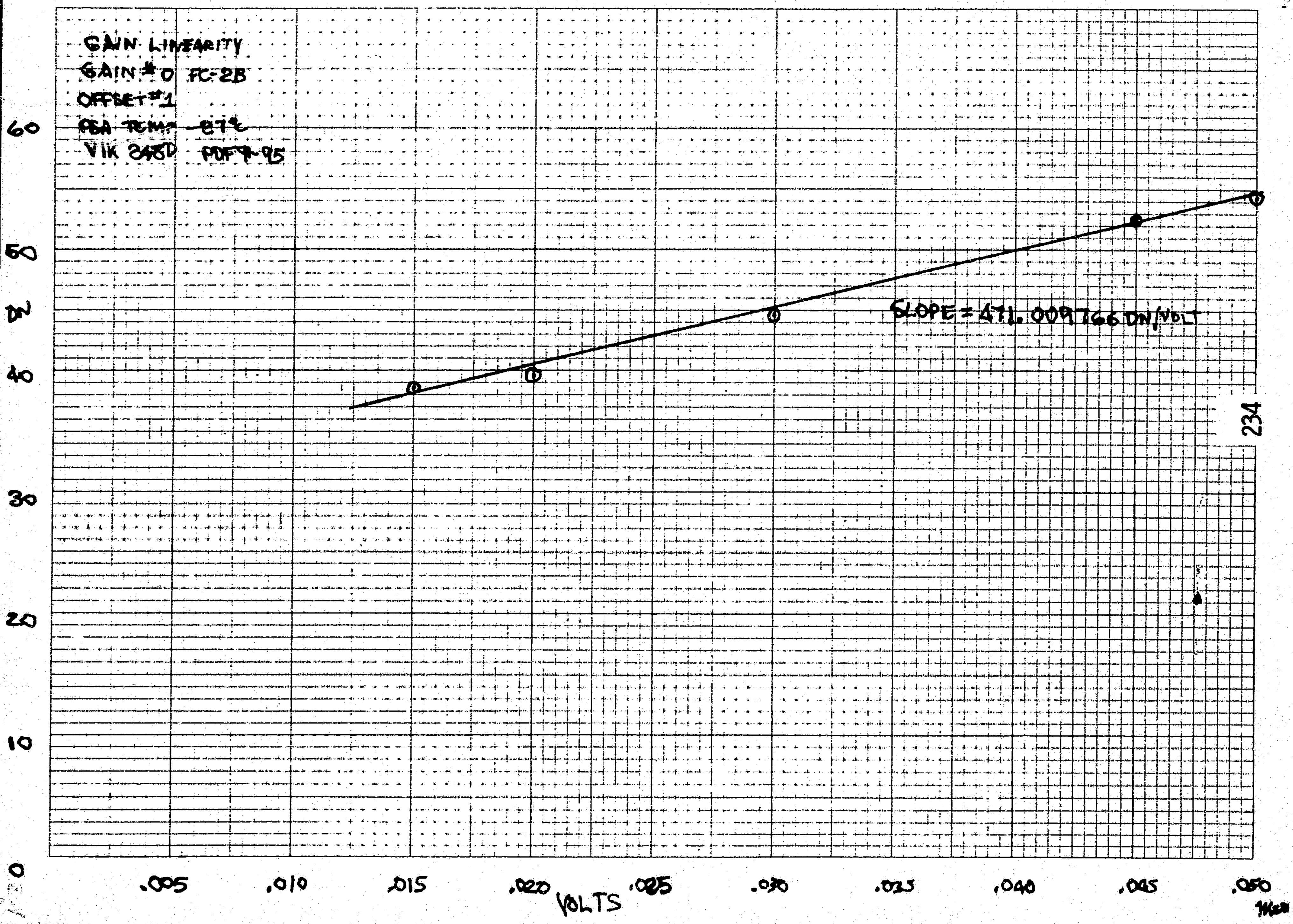

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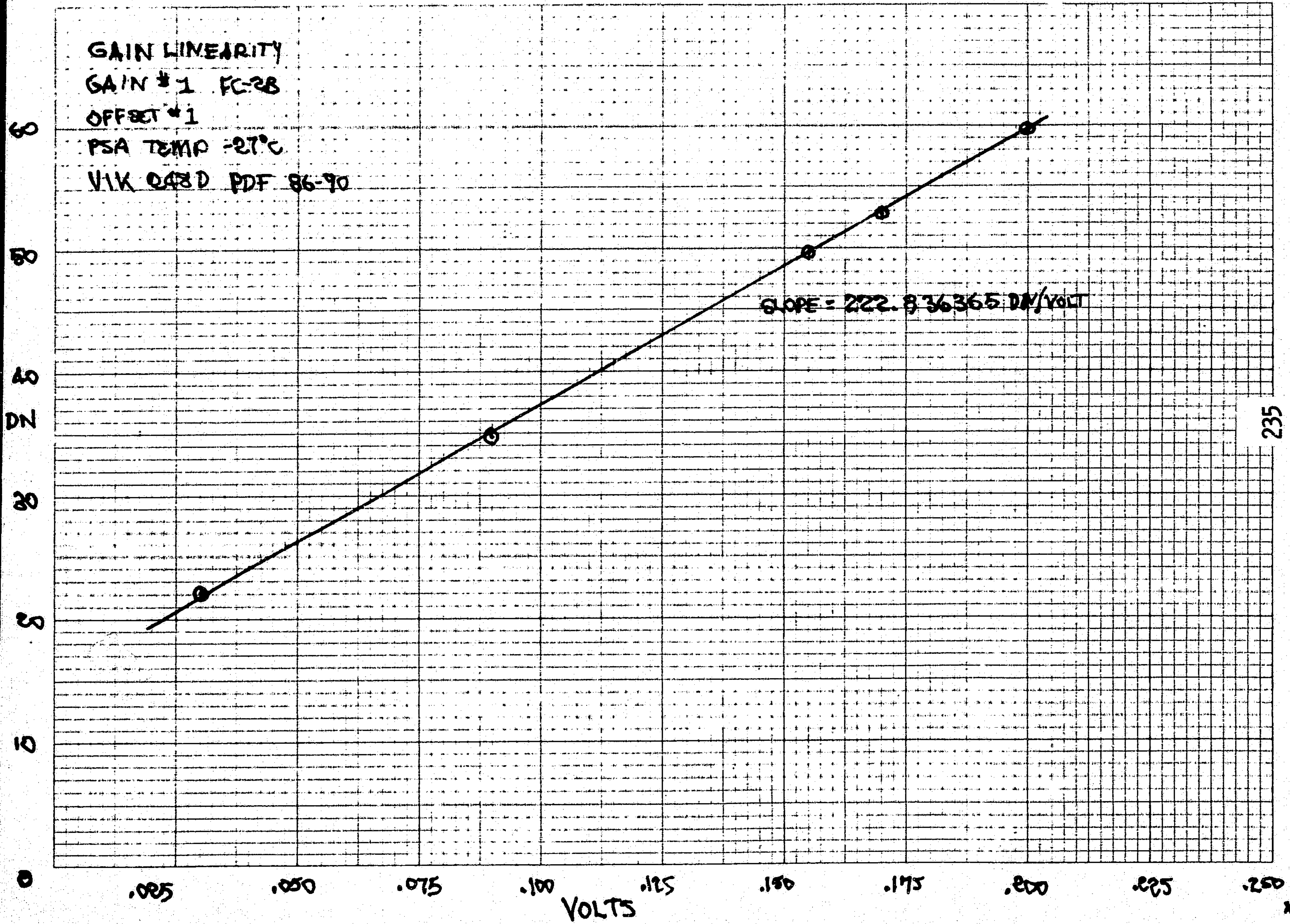

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10 X 10 PER INCH
EUGENE DIETZGEN CO.
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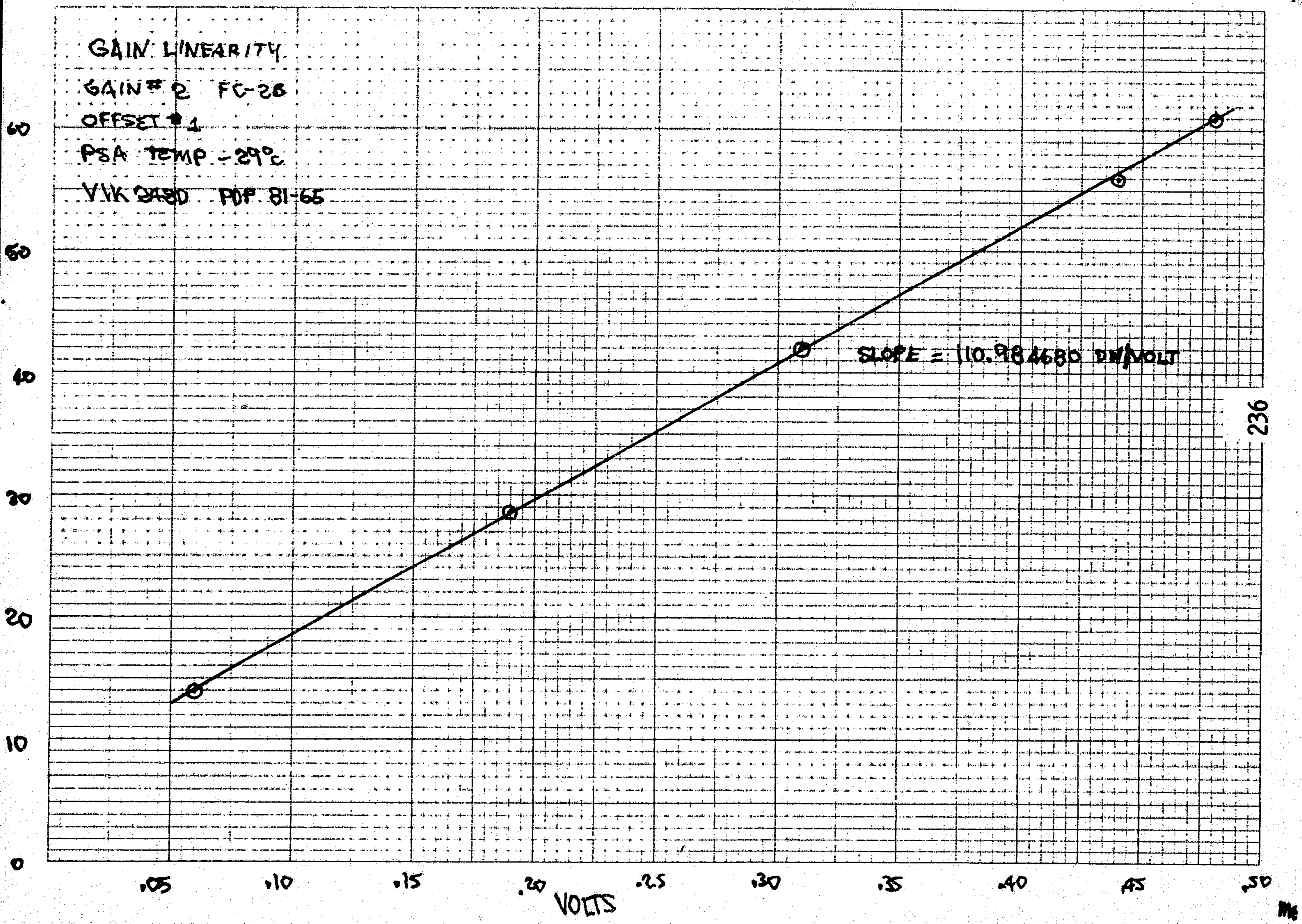
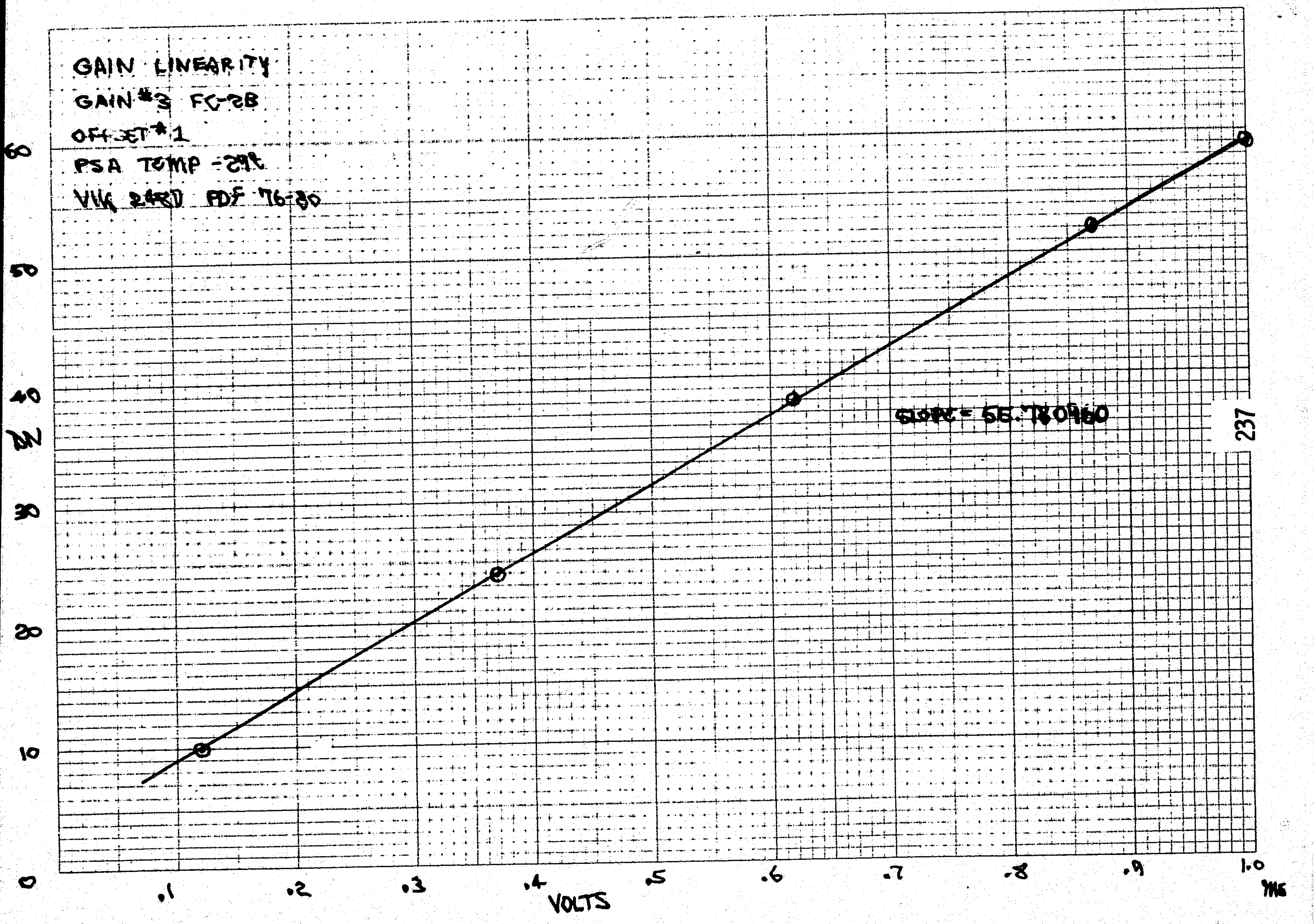
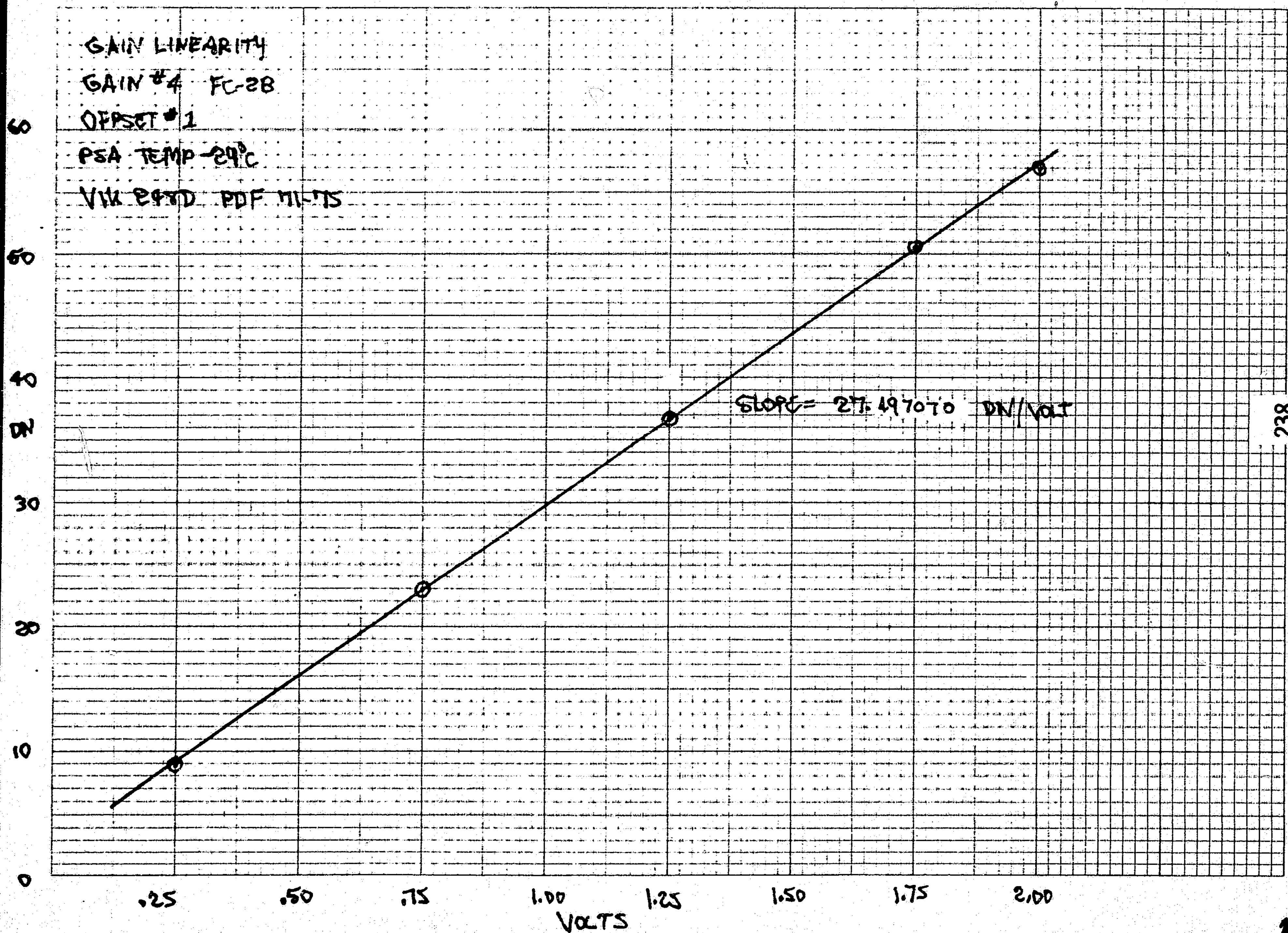


236

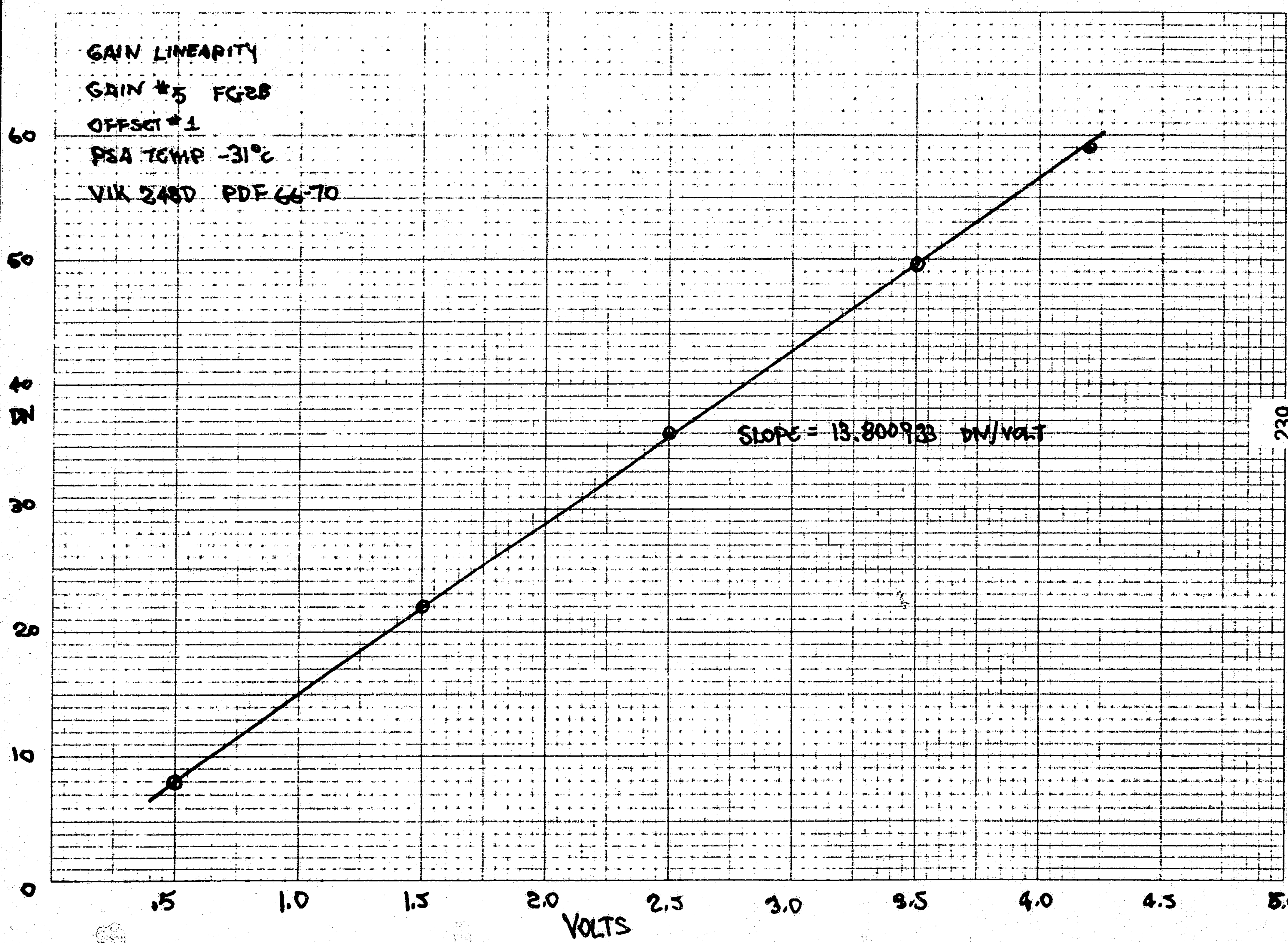

GAIN LINEARITY
GAIN #3 FC-2B
OFFSET #1
PSA TEMP -29°C
60
50
40
DN
30
20
10
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
VOLTS

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U.S.A.

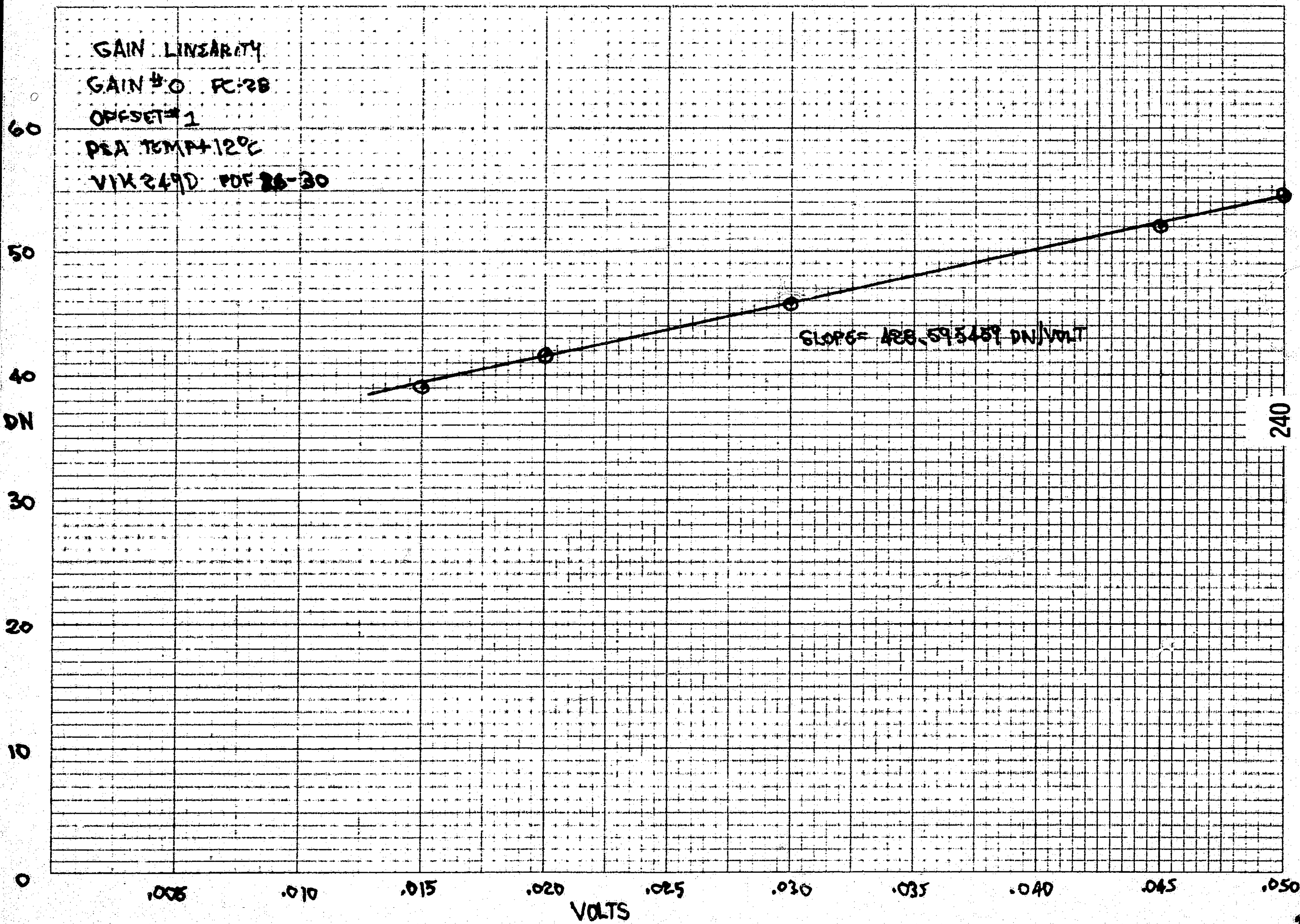


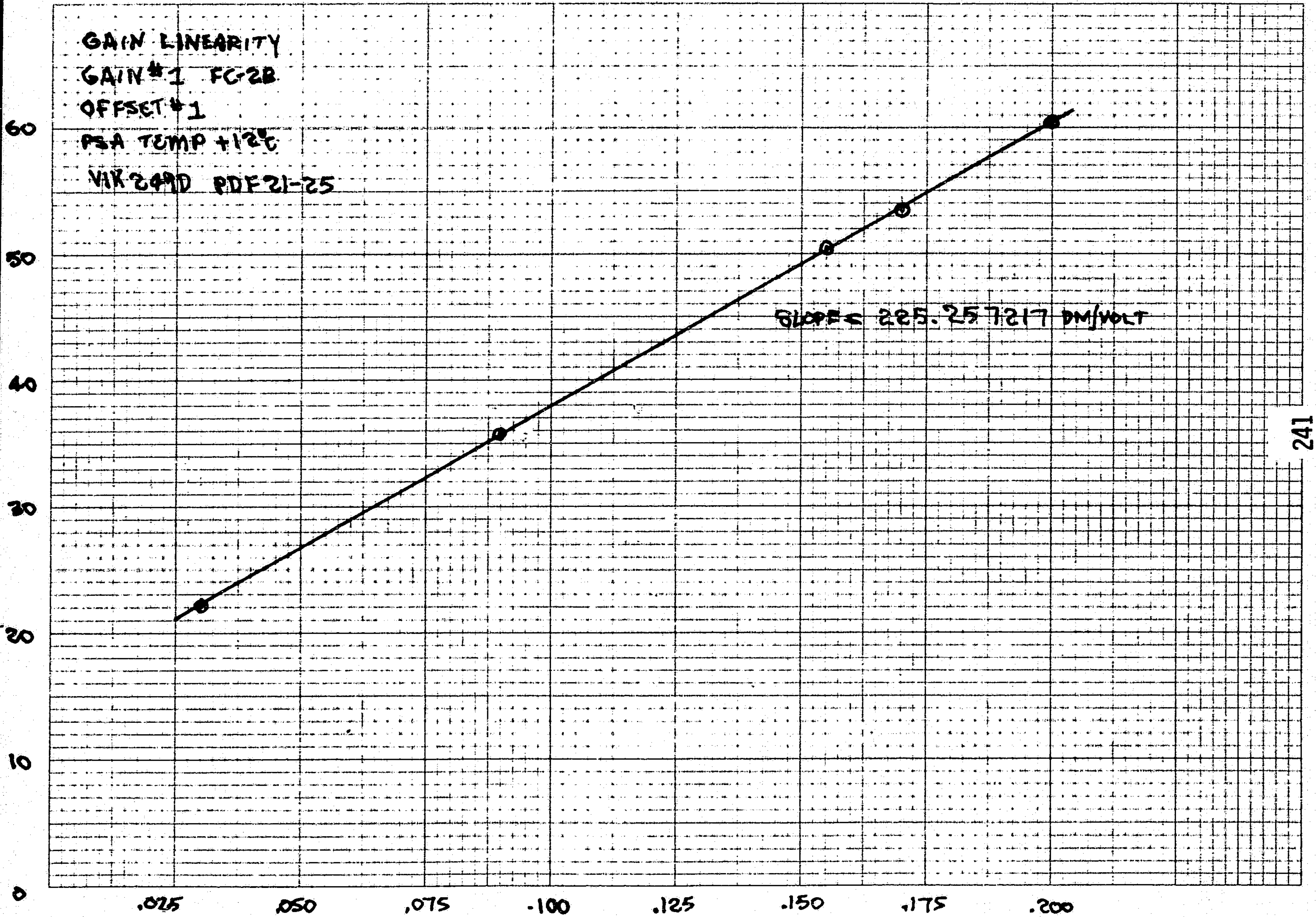
238

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.

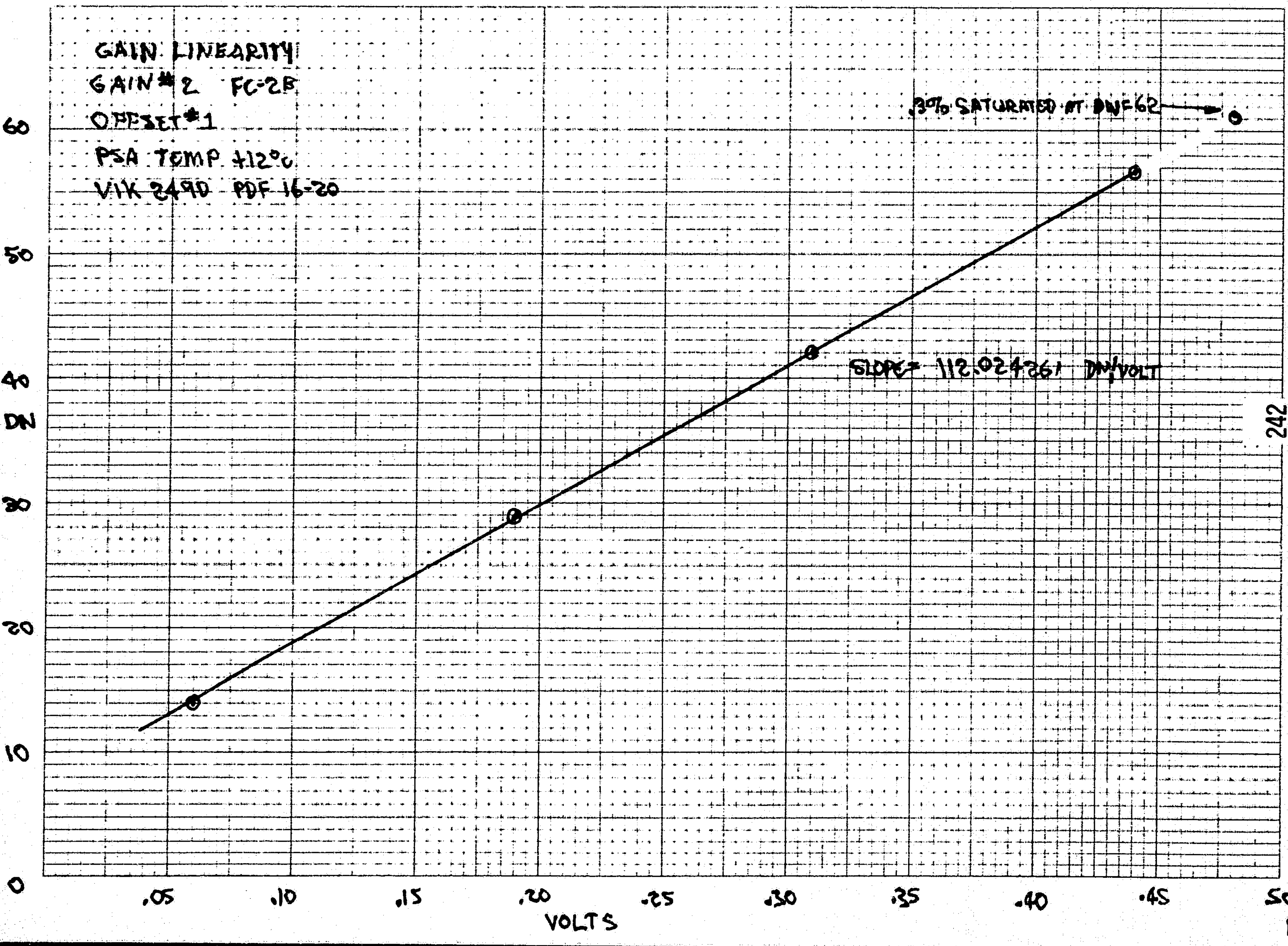


NO. 340A 10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.



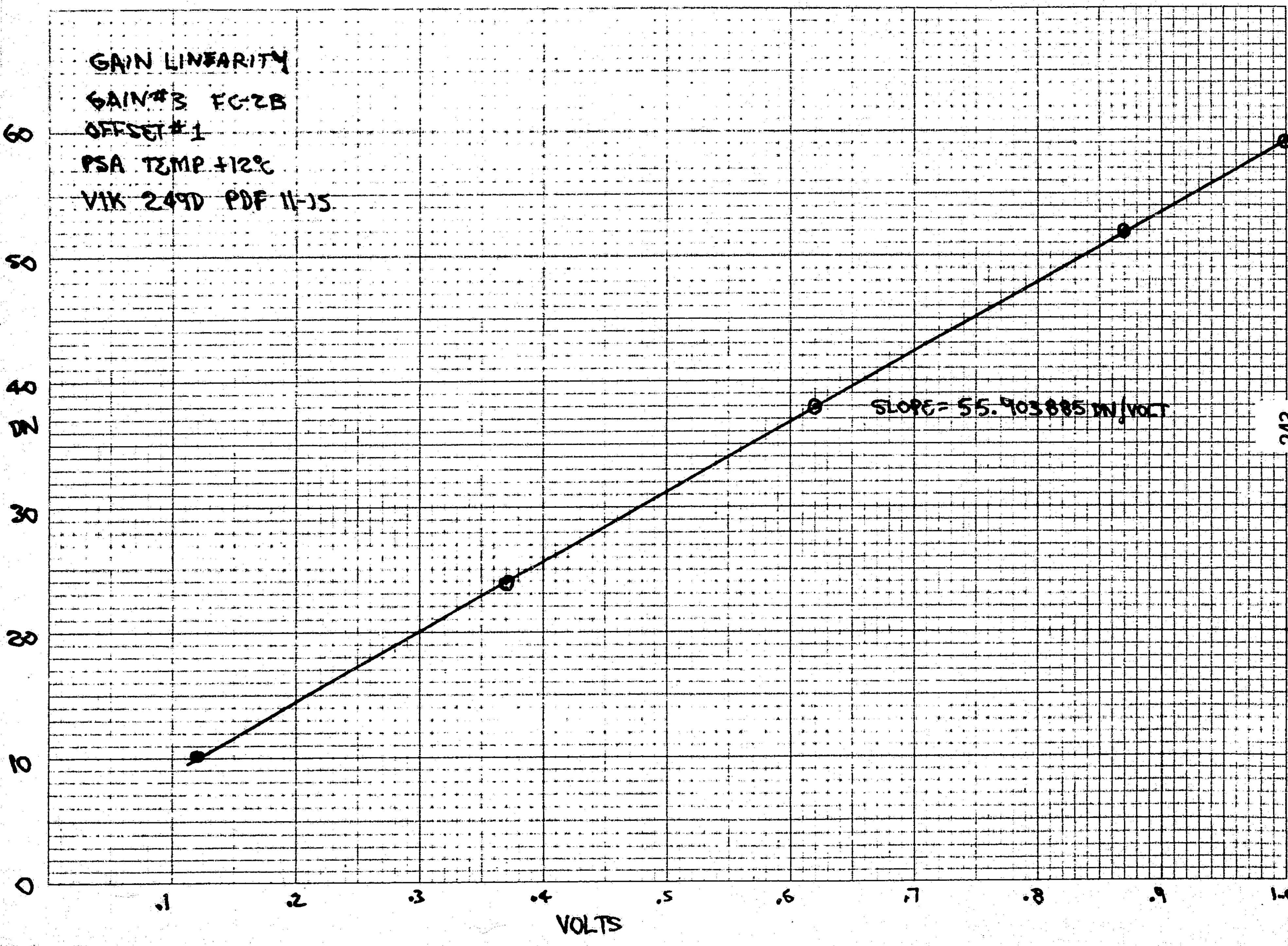

GAIN LINEARITY
GAIN #1 FC-2B
OFFSET #1
PSA TEMP +12°C
VIK 249D PDF 21-25
SLOPE = 225.257217 DM/VOLT
60
50
40
30
20
10
0
.025
.050
.075
.100
.125
.150
.175
.200

NASA


GAIN LINEARITY
GAIN #2 FC-2B
OFFSET #1
PSA TEMP +12°C
VIK 2490 PDF 16-20
3% SATURATED AT DN=62
SLOPE = 112.024261 DN/VOLT
DN
0
10
20
30
40
50
60
.05
.10
.15
.20
.25
.30
.35
.40
.45
.50
VOLTS

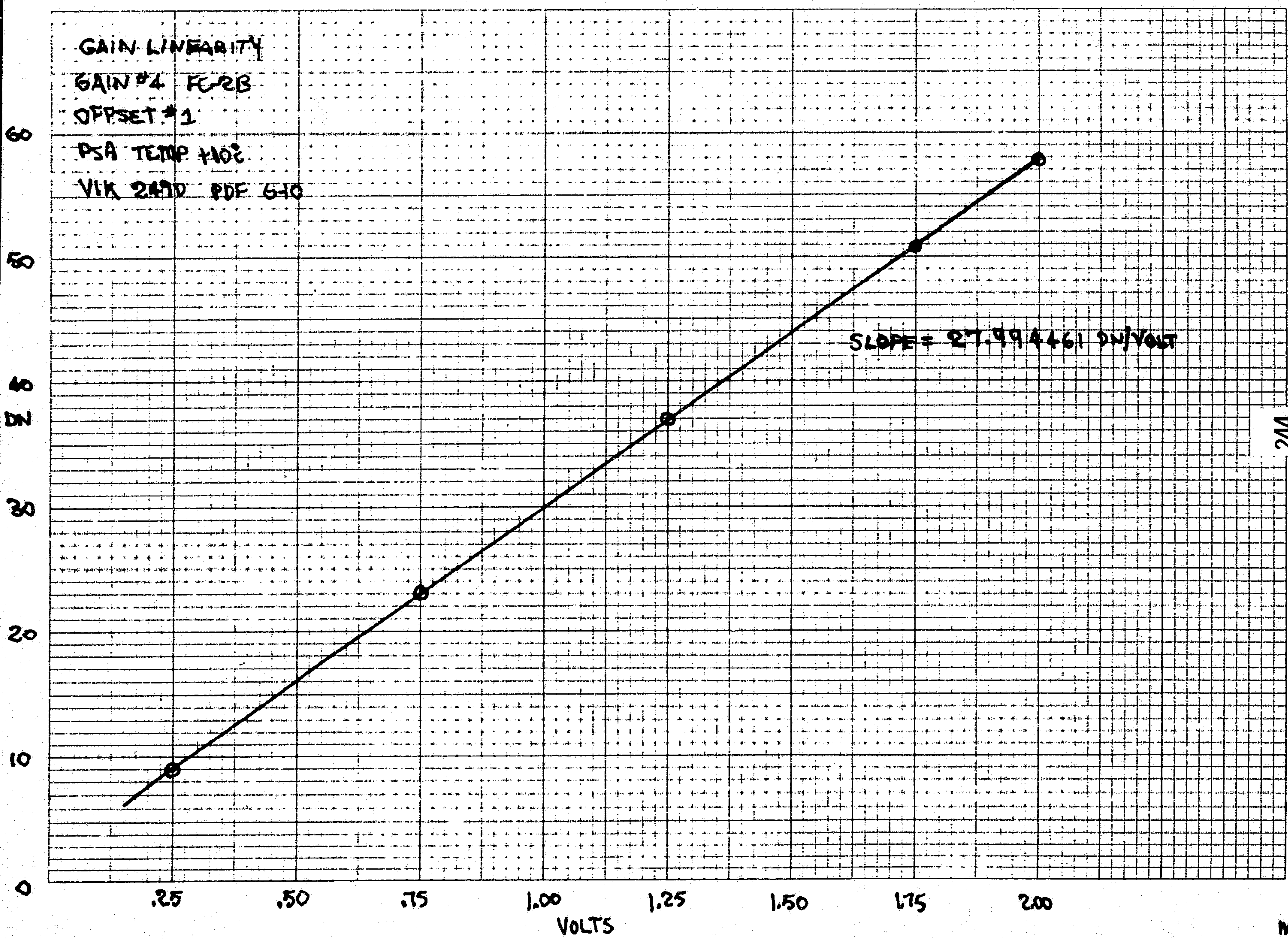
242

NO. 340A 10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U.S.A.



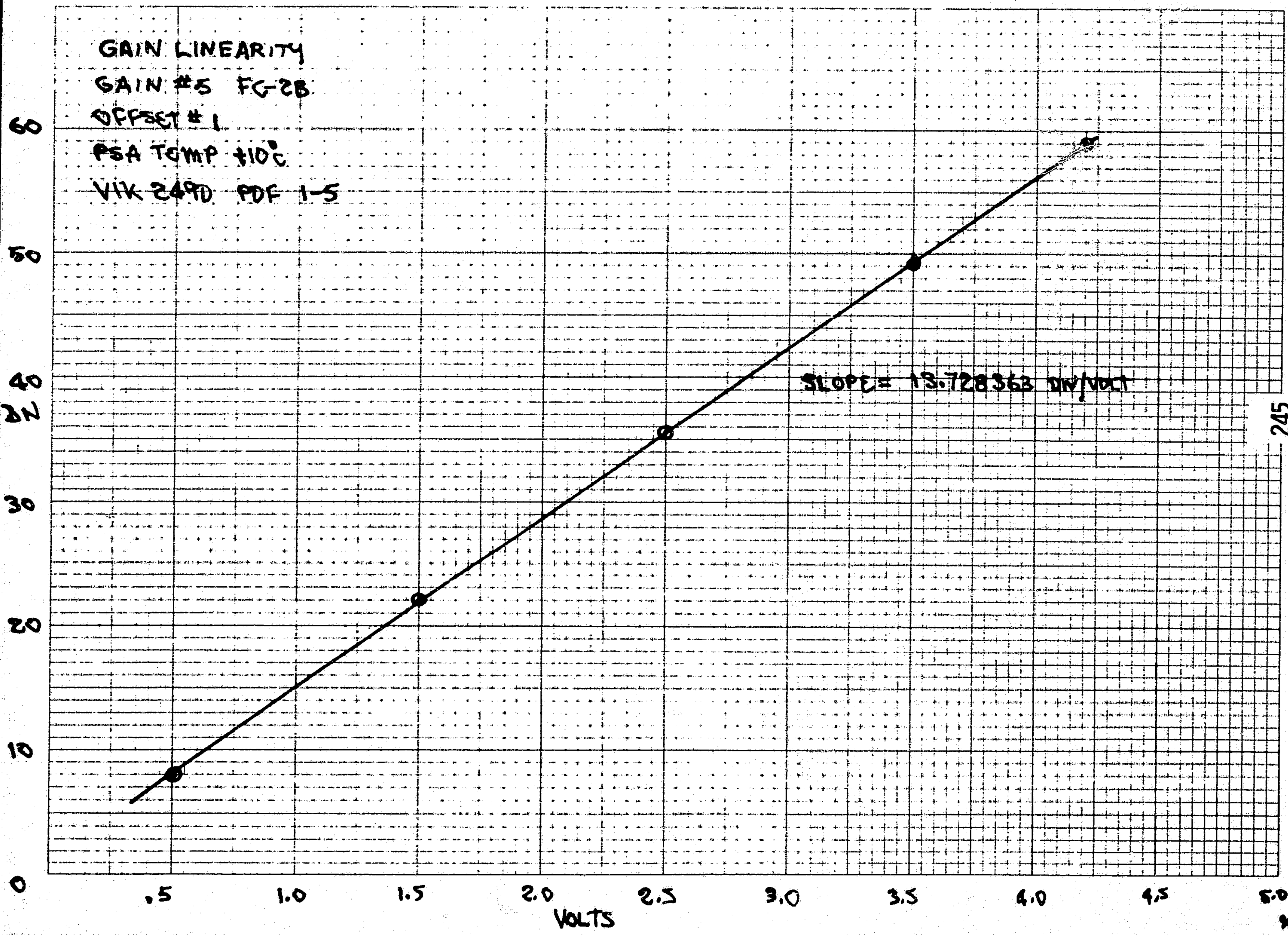
NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.



MCM

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U.S.A.



FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 26-30 **FILES:** 26-30

GAIN = 0 **OFFSET =** 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.050	54.374	0.589	26
0.045	52.126	0.653	27
0.030	45.596	0.611	28
0.020	40.881	0.679	29
0.015	38.282	0.638	30

24

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 21-25 **FILES:** 21-25

GAIN = 1 **OFFSET =** 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.200	58.807		0.400	21
0.170	51.734		0.461	22
0.155	48.419		0.494	23
0.090	34.052		0.238	24
0.030	20.772		0.422	25

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 16-20 **FILES:** 16-20

GAIN = 2 **OFFSET =** 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.48	60.391	0.396	16
0.44	55.964	0.243	17
0.31	41.543	0.536	18
0.19	28.000	0.0	19
0.06	13.962	0.256	20

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 11-15 **FILES:** 11-15

GAIN = 3 **OFFSET =** 1

PSA TEMP = -41°C

SURVEY D⁻ODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
1.00	59.000	0.0	11
0.87	52.000	0.0	12
0.62	38.000	0.0	13
0.37	24.000	0.0	14
0.12	10.000	0.0	15

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D   FRAME COUNT: 6-10   FILES: 6-10

GAIN = 4   OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	57.000		0.0	6
1.75	50.000		0.0	7
1.25	36.118		0.325	8
0.75	22.644		0.479	9
0.25	9.000		0.0	10

2

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 1-5 **FILES:** 1-5

GAIN = 5 **OFFSET =** 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	59.000		0.0	1
3.50	49.000		0.0	2
2.50	35.898		0.631	3
1.50	22.000		0.0	4
0.50	8.000		0.0	5

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 26-30 **FILES:** 91-95

GAIN = 0 **OFFSET =** 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.050	54.271	0.561	26
0.045	52.643	0.552	27
0.030	44.617	0.542	28
0.020	39.641	0.553	29
0.015	38.722	0.591	30

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 21-25 **FILES:** 86-90

GAIN = 1 **OFFSET =** 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.200	59.906	0.309	21
0.170	52.840	0.368	22
0.155	49.650	0.497	23
0.090	34.833	0.374	24
0.030	22.027	0.169	25

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 16-20 **FILES:** 81-85

GAIN = 2 **OFFSET =** 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.48	61.000	0.0	16
0.44	56.001	0.058	17
0.31	42.000	0.0	18
0.19	28.883	0.321	19
0.06	14.000	0.075	20

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 11-15 **FILES:** 76-80

GAIN = 3 **OFFSET =** 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
1.00	59.000		0.0	11
0.87	52.000		0.0	12
0.62	38.000		0.0	13
0.37	24.000		0.0	14
0.12	10.000		0.0	15

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 6-10 **FILES:** 71-75

GAIN = 4 **OFFSET =** 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
2.00	57.039	0.260	6
1.75	50.524	0.501	7
1.25	36.996	0.075	8
0.75	23.000	0.0	9
0.25	9.000	0.0	10

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 248D **FRAME COUNT:** 1-5 **FILES:** 66-70

GAIN = 5 **OFFSET =** 1

PSA TEMP = -31°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
4.20	59.000	0.0	1
3.50	49.662	0.732	2
2.50	36.000	0.0	3
1.50	22.000	0.0	4
0.50	8.000	0.0	5

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 249D FRAME COUNT: 26-30 FILES: 26-30

GAIN = 0 OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.050	54.504	0.583	26
0.045	52.027	0.640	27
0.030	45.927	0.627	28
0.020	41.882	0.652	29
0.015	39.082	0.632	30

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 249D **FRAME COUNT:** 21-25 **FILES:** 21-25

GAIN = 1 **OFFSET =** 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.200	60.544	0.500	21
0.170	53.542	0.503	22
0.155	50.441	0.498	23
0.090	35.937	0.254	24
0.030	22.091	0.296	25

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 249D FRAME COUNT: 16-20 FILES: 16-20

GAIN = 2 OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.48	*61.003	0.067	16
0.44	56.732	0.446	17
0.31	42.002	0.058	18
0.19	28.992	0.089	19
0.06	14.026	0.158	20

* .3% saturated at DN = 62.

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 249D **FRAME COUNT:** 11-15 **FILES:** 11-15

GAIN = 3 **OFFSET =** 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
1.00	59.202	0.446	11
0.87	52.000	0.0	12
0.62	38.000	0.0	13
0.37	24.000	0.0	14
0.12	10.039	0.191	15

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 249D **FRAME COUNT:** 6-10 **FILES:** 6-10

GAIN = 4 **OFFSET =** 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	57.999		0.047	6
1.75	50.981		0.137	7
1.25	37.000		0.0	8
0.75	23.000		0.0	9
0.25	9.000		0.0	10

FC-2B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK 249D **FRAME COUNT:** 1-5 **FILES:** 1-5

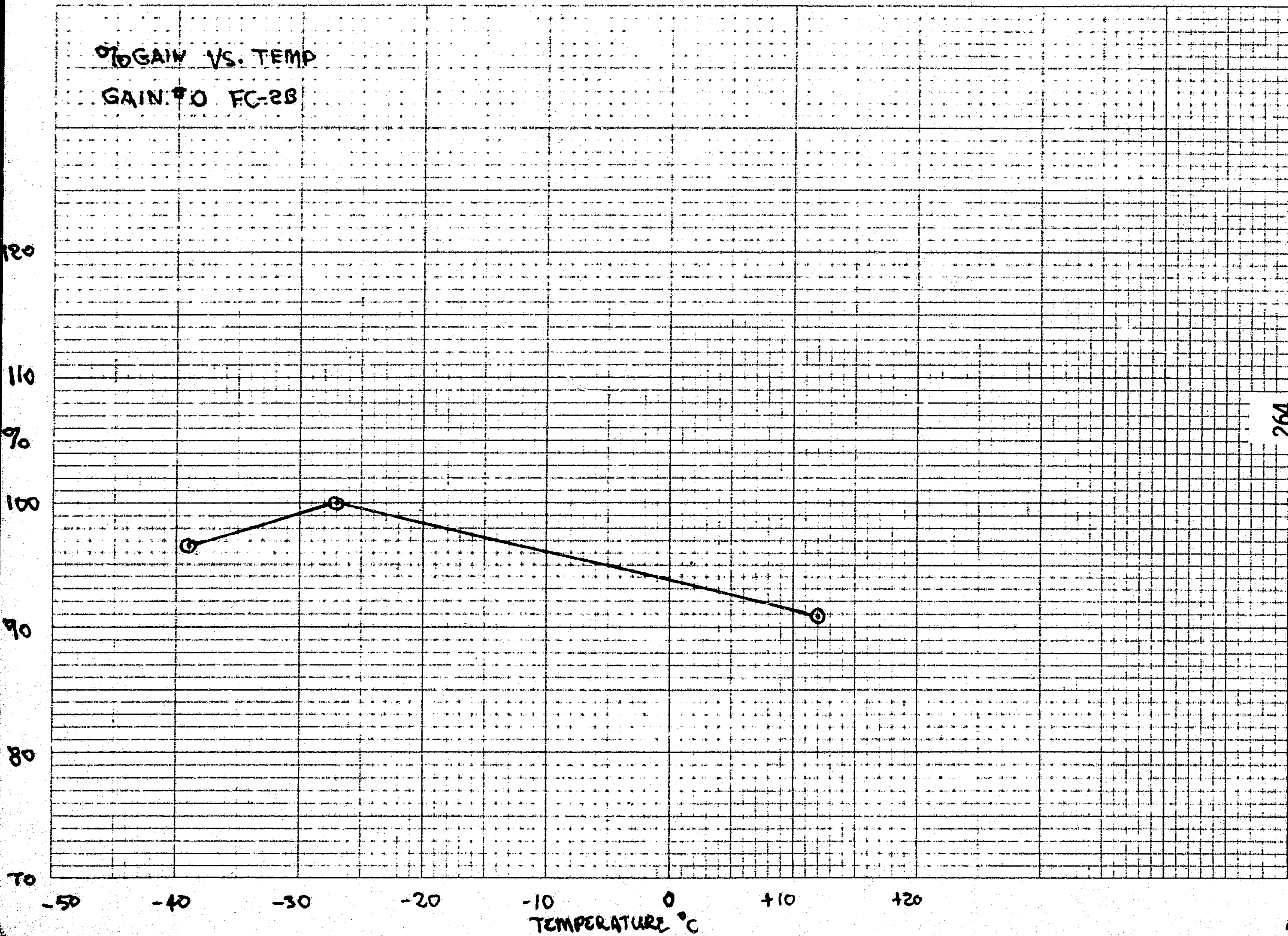
GAIN = 5 **OFFSET =** 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	59.000		0.0	1
3.50	49.074		0.359	2
2.50	35.662		0.598	3
1.50	22.000		0.0	4
0.50	8.000		0.0	5

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.



MDM

NO. 340A-10 DIETZGEN GRAPH PAPER
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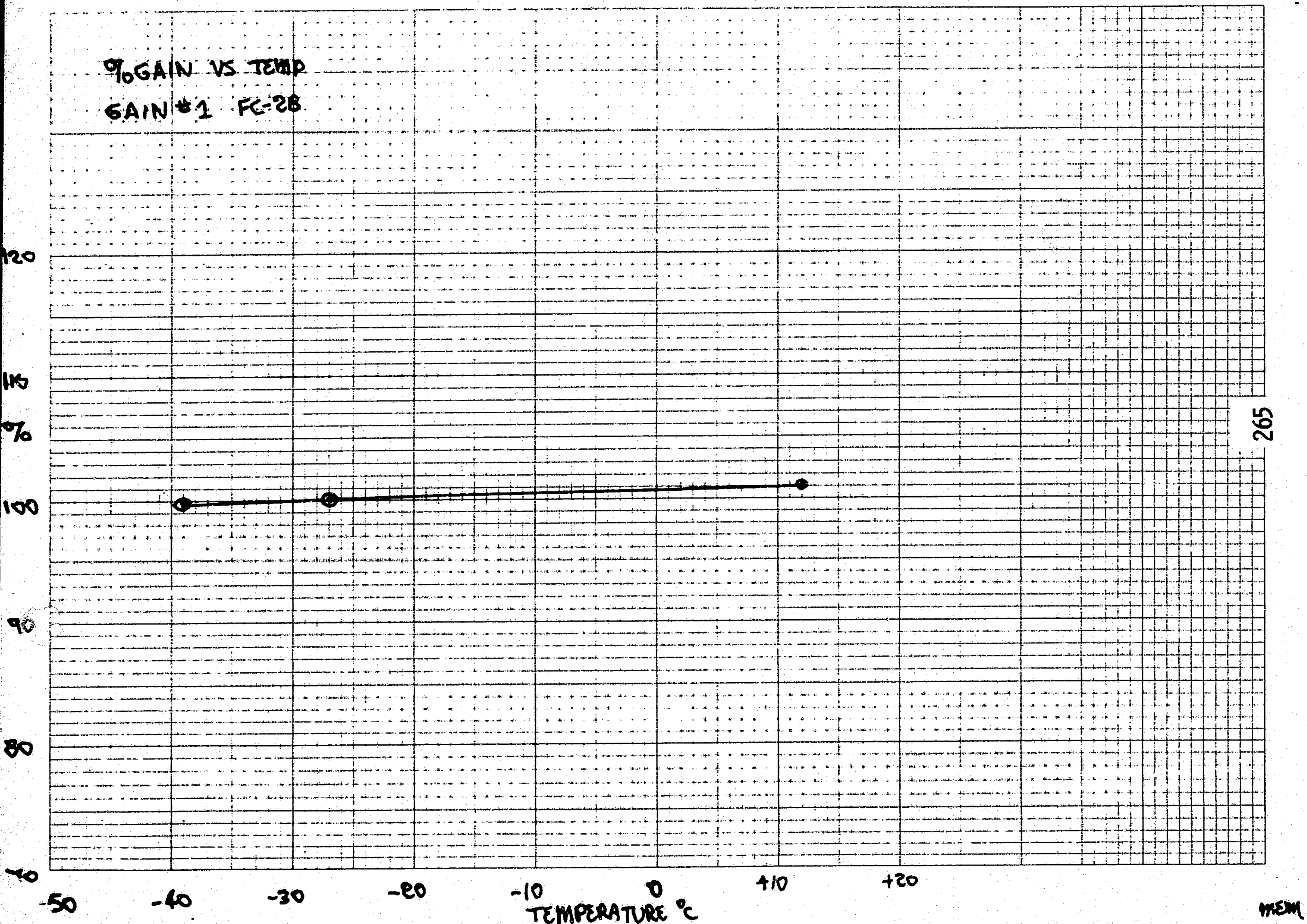

NO. 340A-10 DIETZGEN GRAPH PAPER
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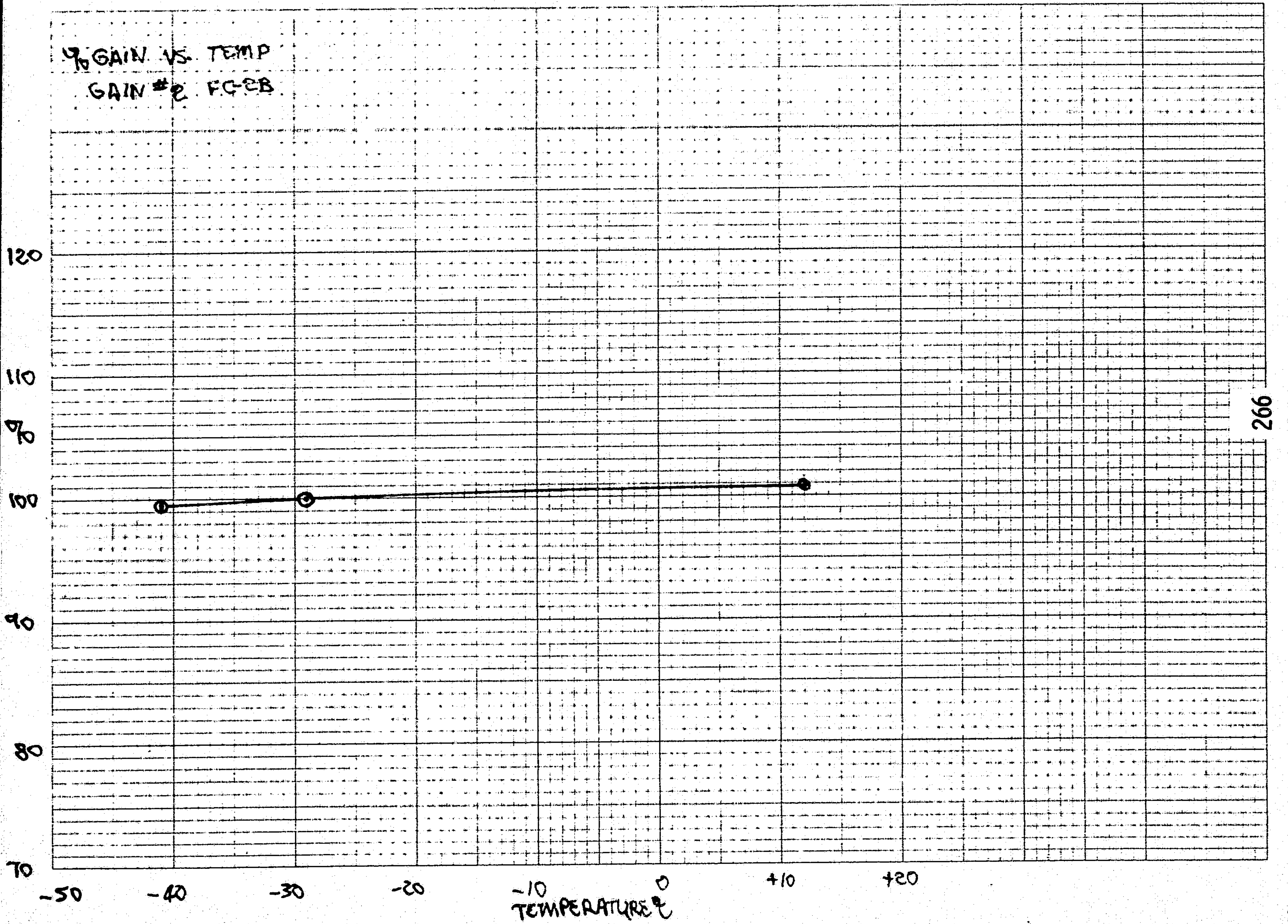

266

NO. 340A-10 DIETZGEN GRAPH PAPER
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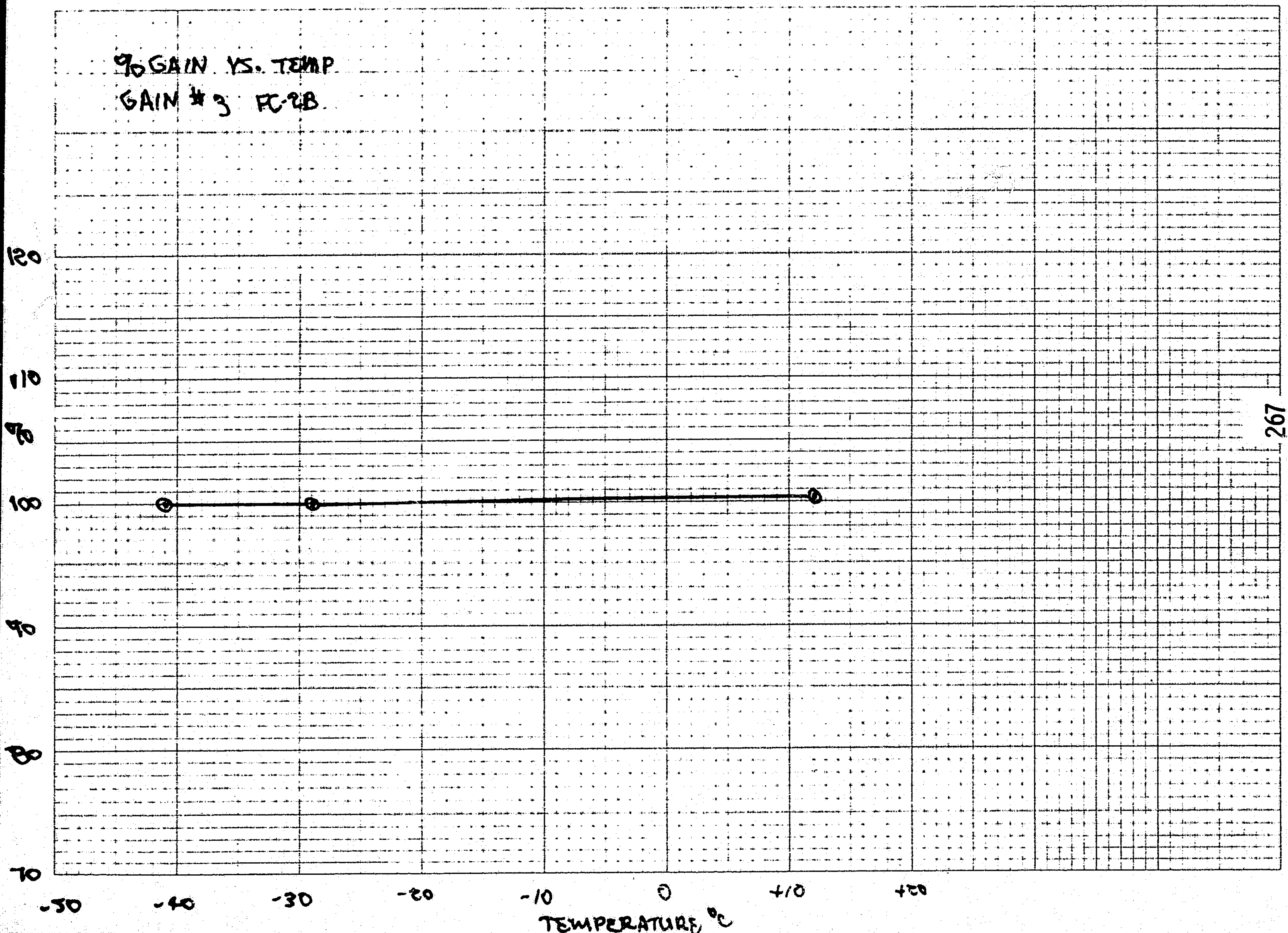

267

MI

NO 340A-10 DIETZGEN GRAPH PAPER
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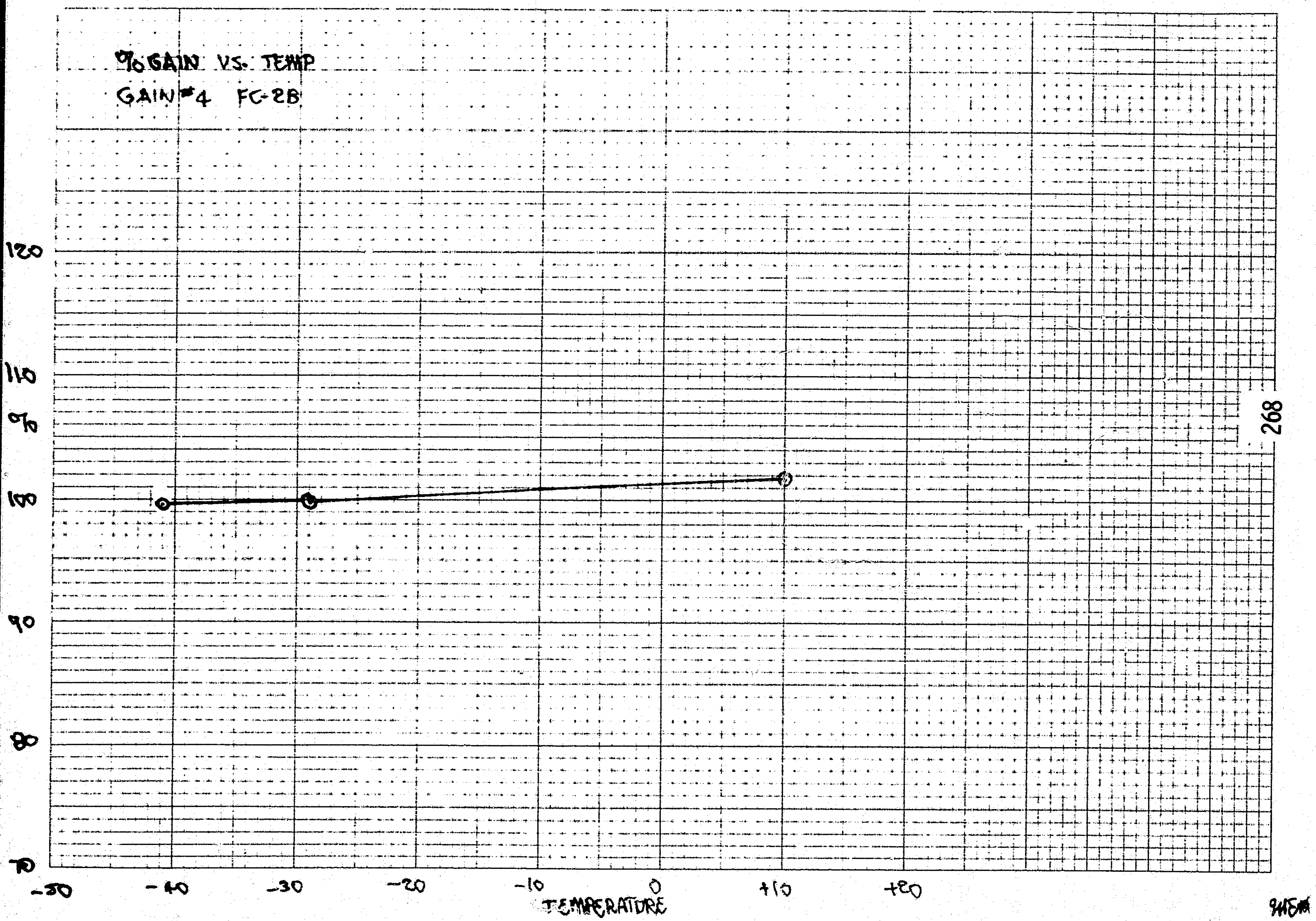
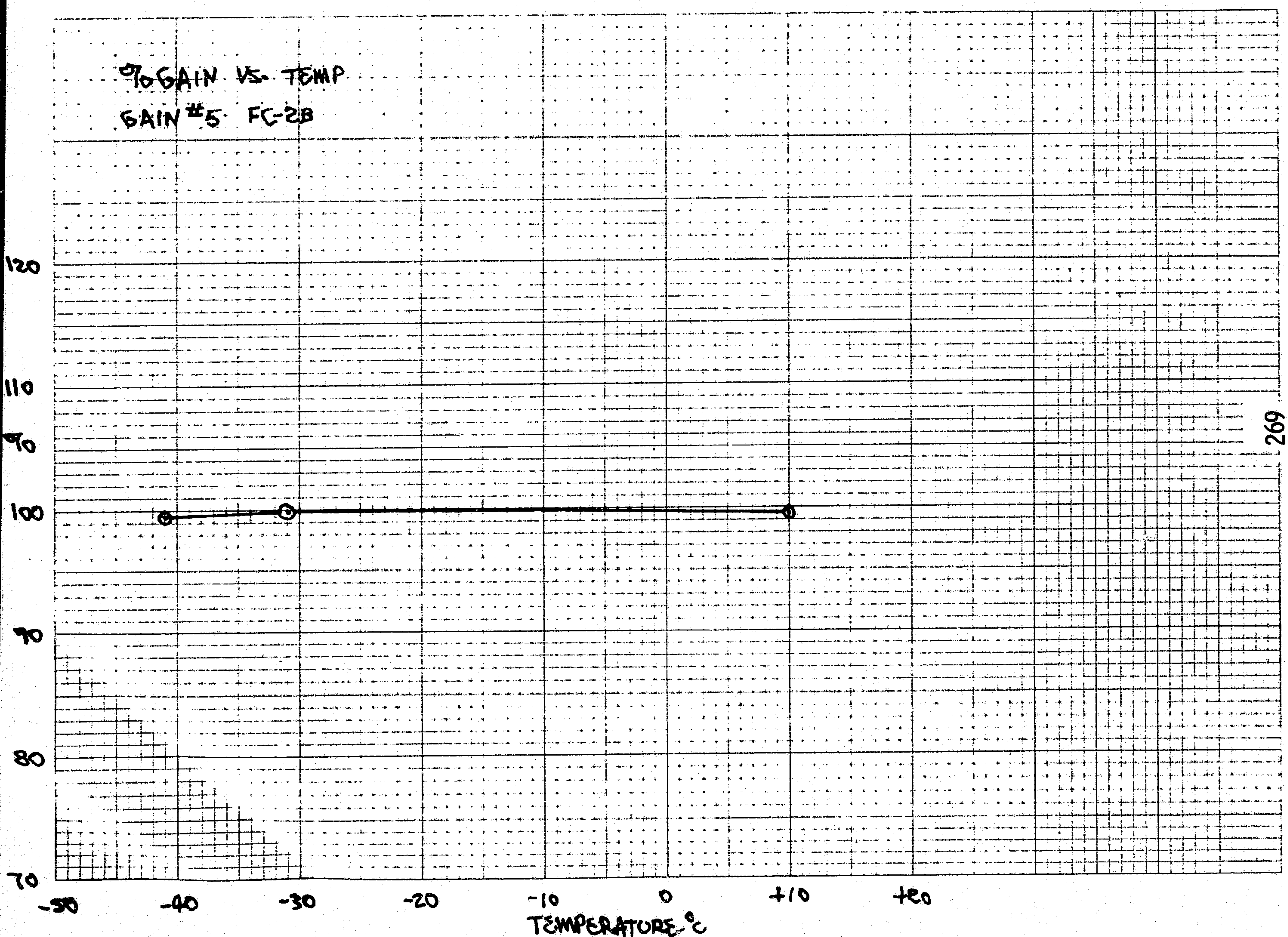


NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.



FC-2B THERMAL CAL GAIN TEST

Gain as a Function of Temperature

Gain Setting	Gain/Temp	Gain/Temp	Gain/Temp
0	428.595459/+12°C	471.009766/-27°C	455.715332/-39°C
1	225.257217/+12°C	222.836365/-27°C	222.800659/-39°C
2	112.024261/+12°C	110.984680/-29°C	110.519653/-41°C
3	55.903885/+12°C	55.780960/-29°C	55.780960/-41°C
4	27.994461/+10°C	27.497070/-29°C	27.398026/-41°C
5	13.728363/+10°C	13.800933/-31°C	13.721118/-41°C

FC-2B THERMAL CAL GAIN TEST

Gain Percent as a Function of Temperature

Gain at "Middle" Temperature = 100%

Gain Setting	%/Temp	%/Temp	%/Temp
0	90.99503/+12°C	100.0/-27°C	96.75284/-39°C
1	101.08638/+12°C	100.0/-27°C	99.98398/-39°C
2	100.93669/+12°C	100.0/-29°C	99.58100/-41°C
3	100.22037/+12°C	100.0/-29°C	100.0/-41°C
4	101.80889/+10°C	100.0/-29°C	99.64046/-41°C
5	99.47417/+10°C	100.0/-31°C	99.42167/-41°C

T.V. GAIN CAMERA FC 2B TAPE VIK 248 D
OFFSET 1

POG	TEMP	GAIN#	$\overline{DN}$	σ	VOLTAGE
1	-41	5	59.000	0.0	4.20
			49.000	0.0	3.50
			35.898	0.631	2.50
			22.000	0.0	1.50
			8.000	0.0	0.50
6		4	57.000	0.0	2.00
			50.000	0.0	1.75
			36.118	0.325	1.25
			22.644	0.479	0.75
			9.000	0.0	0.25
11		3	59.000	0.0	1.00
			52.000	0.0	0.87
			38.000	0.0	0.62
			24.000	0.0	0.37
			10.000	0.0	0.12
16		2	60.191	0.396	0.48
			55.964	0.243	0.44
			41.543	0.536	0.31
			28.000	0.0	0.19
	-39		13.962	0.256	0.06
21		1	58.807	0.400	0.20
			51.734	0.461	0.17
			48.419	0.494	0.155
			34.052	0.238	0.090
			20.772	0.422	0.030
26		0	54.374	0.589	0.050
			52.126	0.653	0.045
			45.596	0.611	0.030
			40.881	0.679	0.020
30			38.282	0.638	0.015

T.V. GAIN CAMERA FC2B TAPE VIK 248 D
OFFSET 1

PDF	TEMP	GAIN#	$\overline{DN}$	σ	VOLTAGE
66	-33	5	59.000	0.0	4.20
	-31		49.662	0.732	3.50
			36.000	0.0	2.50
			22.000	0.0	1.50
			8.000	0.0	0.50
71		4	57.039	0.260	2.00
	-29		50.524	0.501	1.75
			39.996	0.075	1.25
			23.000	0.0	0.75
			9.000	0.0	0.25
76		3	59.000	0.0	1.00
			52.000	0.0	0.87
			38.000	0.0	0.62
			24.000	0.0	0.37
			10.000	0.0	0.12
81		2	61.000	0.0	0.48
			56.001	0.058	0.44
			42.000	0.0	0.31
			28.883	0.321	0.19
	-27		14.006	0.075	0.06
86		1	59.906	0.309	0.20
			52.840	0.368	0.17
			49.650	0.497	0.155
			34.833	0.374	0.090
			22.027	0.169	0.030
91		0	54.271	0.561	0.050
			52.643	0.552	0.045
			44.617	0.542	0.030
			39.641	0.553	0.020
95			38.722	0.591	0.015

T.V. GAIN CAMERA FC2B TAPE V1K249 D

OFFSET 1

PDG	TEMP	GAIN #	$\overline{DN}$	σ	VOLTAGE	
1	10	5	59.000	0.0	4.20	
			49.074	0.359	3.50	
			35.662	0.598	2.50	
			22.000	0.0	1.50	
			8.000	0.0	0.50	
6		4	57.999	0.047	2.00	
			50.981	0.137	1.75	
			37.000	0.0	1.25	
			23.000	0.0	0.75	
			9.000	0.0	0.25	
11	12	3	59.202	0.446	1.00	
			52.000	0.0	0.87	
			38.000	0.0	0.62	
			24.000	0.0	0.37	
			10.038	0.191	0.12	
16		2	61.003	0.067	0.48	.3% SAT @ 62
			56.732	0.446	0.44	
			42.002	0.058	0.31	
			28.992	0.089	0.19	
			14.026	0.158	0.06	
21		1	60.544	0.500	0.20	
			53.542	0.503	0.17	
			50.441	0.498	0.155	
			35.937	0.254	0.090	
			22.091	0.296	0.030	
26		0	54.504	0.583	0.050	
			52.027	0.640	0.045	
			45.927	0.627	0.030	
			41.882	0.652	0.020	
30			39.082	0.632	0.015	

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 1/5/75

CALIBRATION RUN FC-2B CAL-BOT OFFSET TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

1. Table of Offsets in Millivolts
2. Graph of Millivolts vs. Offset Number
3. The Mean Millivolts/Offset Step

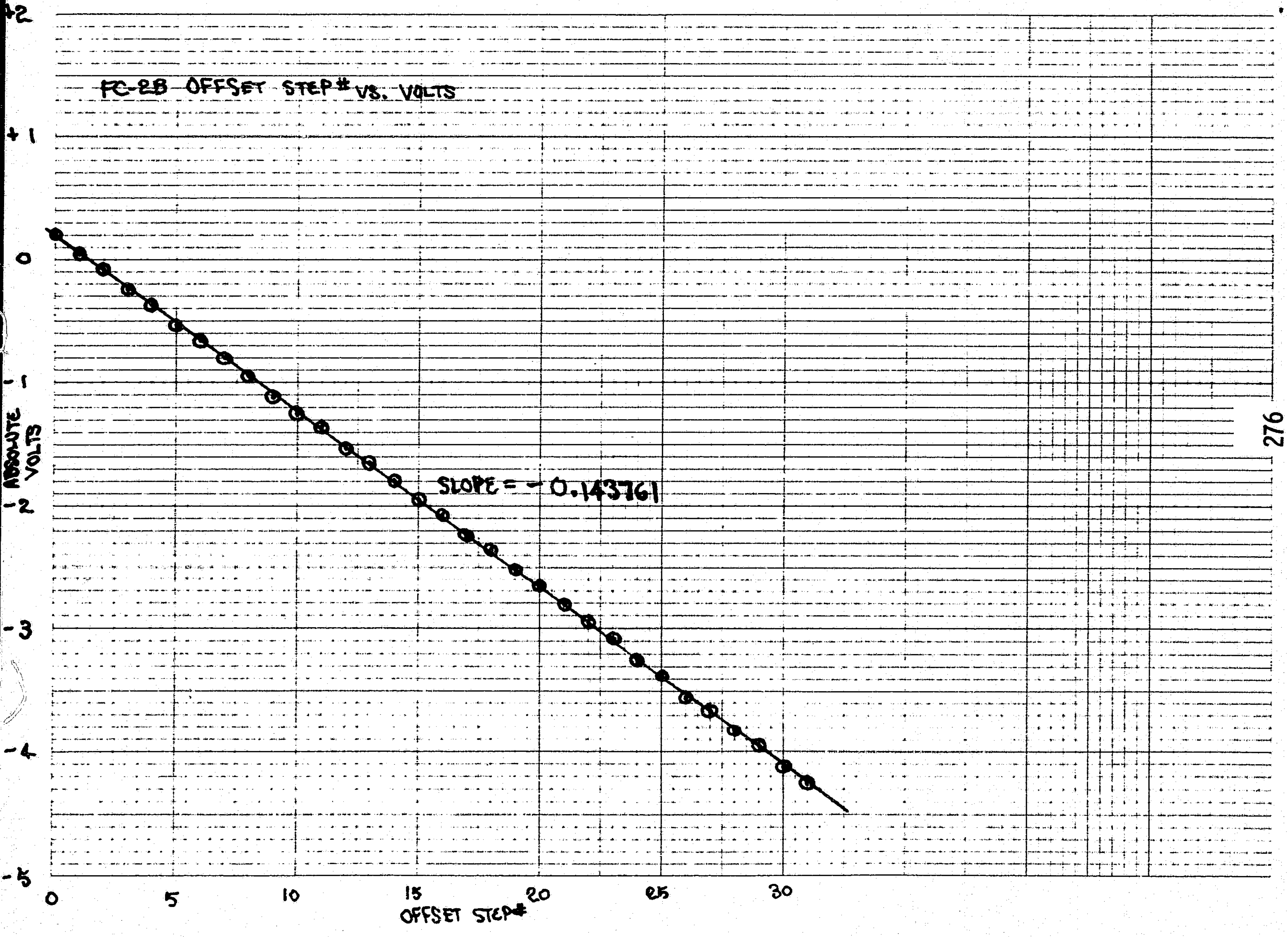
TEST DESCRIPTION D.C. voltage was input to the test connector. The camera was operated at a gain of 3. A PDF was taken at each offset, adjusting the D.C. voltage every 5 frames to avoid saturation (repeating the last offset when this was done).

DATA PROCESSING DESCRIPTION Mean DN was listed for each of the 37 PDFs (SL = 80, SS = 200, NL = 30, NS = 30). These DN's were divided by the camera gain 55.903885 to generate an "offset ladder" for each analog input. (End points were set equal to give a continuous relationship for graphing.) A least squares fit was used to arrive at the slope or mean millivolts/offset step.

ANALYST Michael E. Morrill

APPROVAL Michael R. Wolf

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U.S.A.



CAL BOT OFFSET TEST

FC-2B

SLOPE = -0.143761 mv/offset step

GAIN VALUE= 55.902885

OFFSET NUMBER	DN VALUES	OFFSET IN VOLTS
0	56.007	0.201844
1	48.000	0.058617
2	40.037	-0.083824
3	32.000	-0.227589
4	24.000	-0.370691
5	16.000	-0.513794
5	55.000	-0.513793
6	47.000	-0.656896
7	38.999	-0.800017
8	31.000	-0.943102
9	23.001	-1.086186
10	15.000	-1.229307
10	54.000	-1.229307
11	46.000	-1.372410
12	38.000	-1.515512
13	30.000	-1.658615
14	22.000	-1.801719
15	14.000	-1.944821
15	53.000	-1.944821
16	45.000	-2.087924
17	37.000	-2.231027
18	28.968	-2.374102
19	21.000	-2.517232
20	13.000	-2.660335
20	52.000	-2.660335
21	44.000	-2.803437
22	36.000	-2.946541
23	27.998	-3.089680
24	19.483	-3.241995
25	11.000	-3.393737
25	56.000	-3.393737
26	48.000	-3.536839
27	39.999	-3.679959
28	31.961	-3.823743
29	23.920	-3.967579
30	15.771	-4.113247
31	7.811	-4.255732

OFFSET BOT#8

CAMERA FC2B TAPE VIK 235 D

SURVEY PSA TEMP=+30°C GAIN#3 = ~~55.78095~~ 55.903885

OFFSET #	GAIN	DN	PDF		ANALOGU VOLTS
0	3	56,007	55		0.800
1		48,000			
2		40,037			
3		32,000			
4		24,000			
5		16,000			
5		55,000			1.500
6		47,000			
7		38,999			
8		31,000			
9		23,001			
10		15,000			
10		54,000			2.200
11		46,000			
12		38,000			
13		30,000			
14		22,000			
15		14,000			
15		53,000			2.900
16		45,000			
17		37,000			
18		28.968			
19		21,000			
20		13.000			
20		52,000			3.600
21		44,000			
22		36,000			
23		27,998			
24		19,483			
25		11,000			
25		56,000			4.400
26		48,000			
27		39,999			
28		31,961			
29		23.920			
30		15,771			
31		7,811	86		

III-B

FC-1B CAMERA

2

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 01/20/75

CALIBRATION RUN COHERENT NOISE TEST, FC-1B CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Hardcopies of one-dimensional Fourier transforms of coherent noise test frames 01-28 from the Cal. B.O.T. at Itek. Tape VIK217D.

Results Summary attached.

TEST DESCRIPTION Two dark current frames were taken with each of the broadband and color diodes, one frame with the dark current subtractor on and one frame with the dark current subtractor off. The offset was changed as necessary with the gain always constant.

DATA PROCESSING DESCRIPTION One-dimensional Fourier transforms of each frame were computed for all lines after line sixty-four.

ANALYST David L. Atwood

APPROVAL Michael P. Wolf

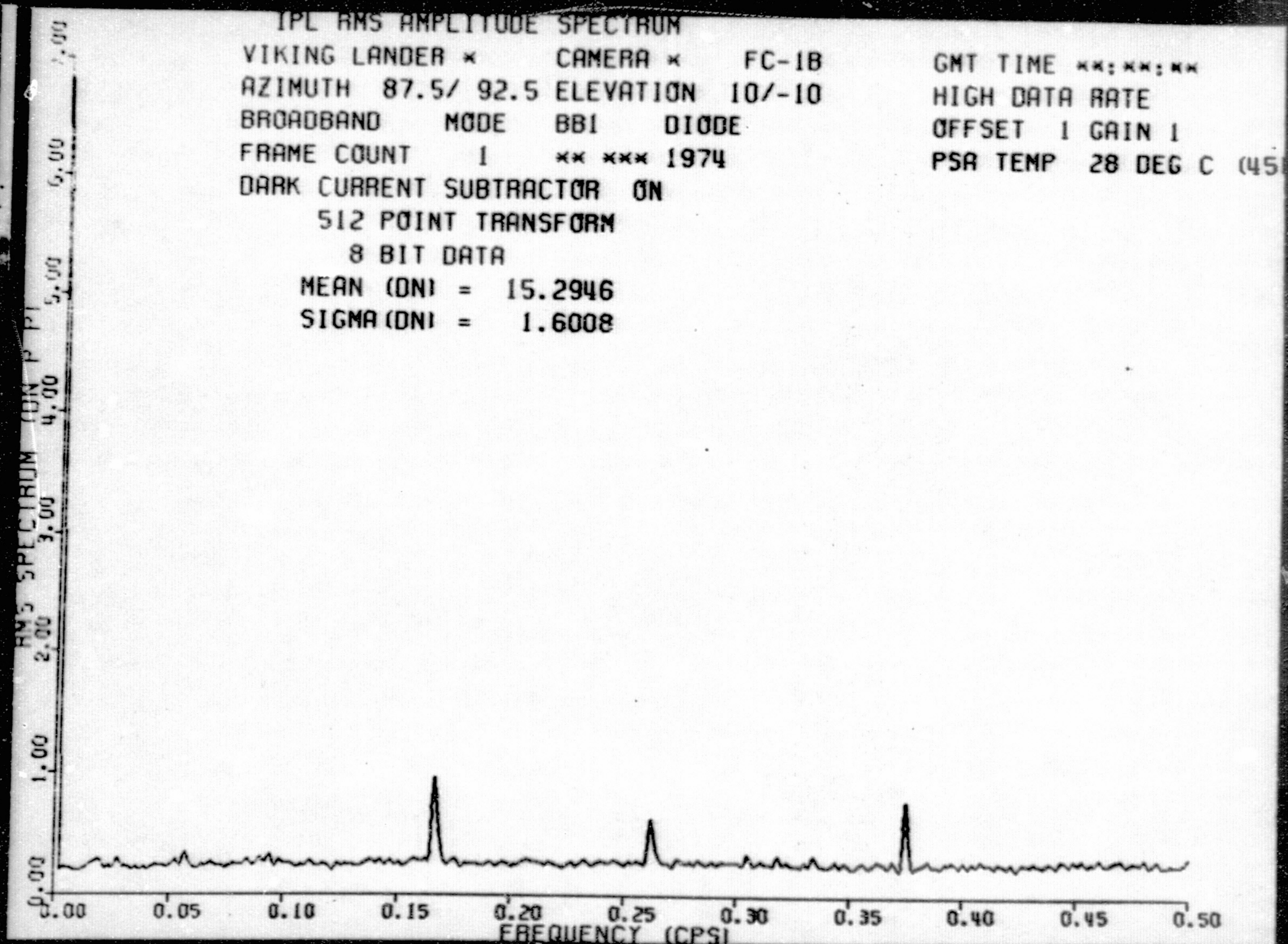
RESULTS SUMMARY: FC-1B

The two IR color mode frames #29 and #30 for the coherent noise test were apparently taken incorrectly. IR imaging mode commands must be accompanied by an IR3 channel select to start an IR3, IR2, IR1 sequence. On this test the IR imaging mode command was accompanied by an IR1 channel select.

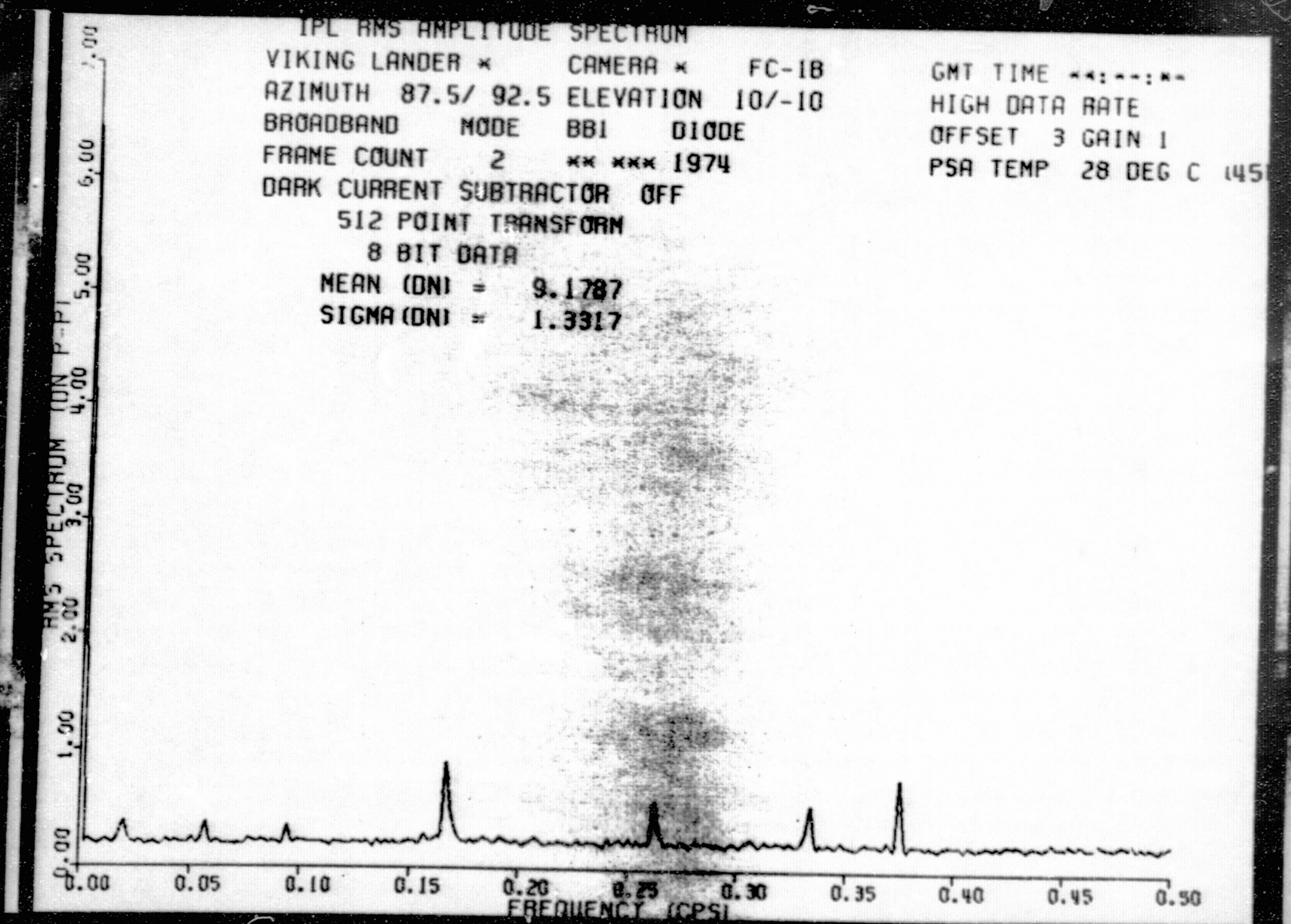
There was a noticeable effect on the coherent noise frequencies when the offset was changed. For instance, in broadband or monocolor mode the noise frequencies are stronger on higher offsets in most cases, the exceptions being the Survey, Green and IR3 channels.

Frame #23, the first of the four low data rate frames was apparently taken incorrectly. The mean DN was 15.000 with no standard deviation (Sigma = 00.00).

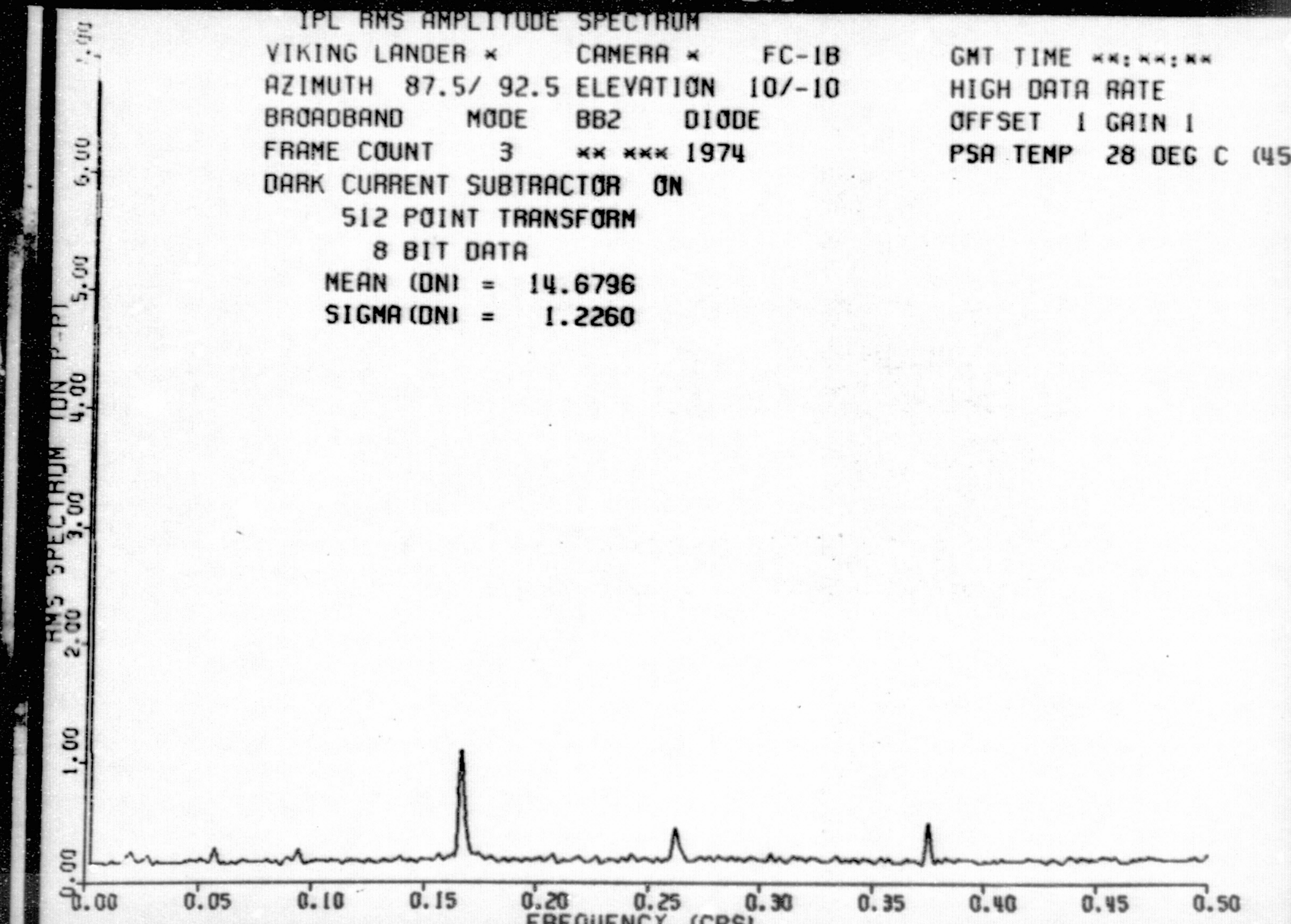
Incoherent noise was unusually high on the Blue channel.

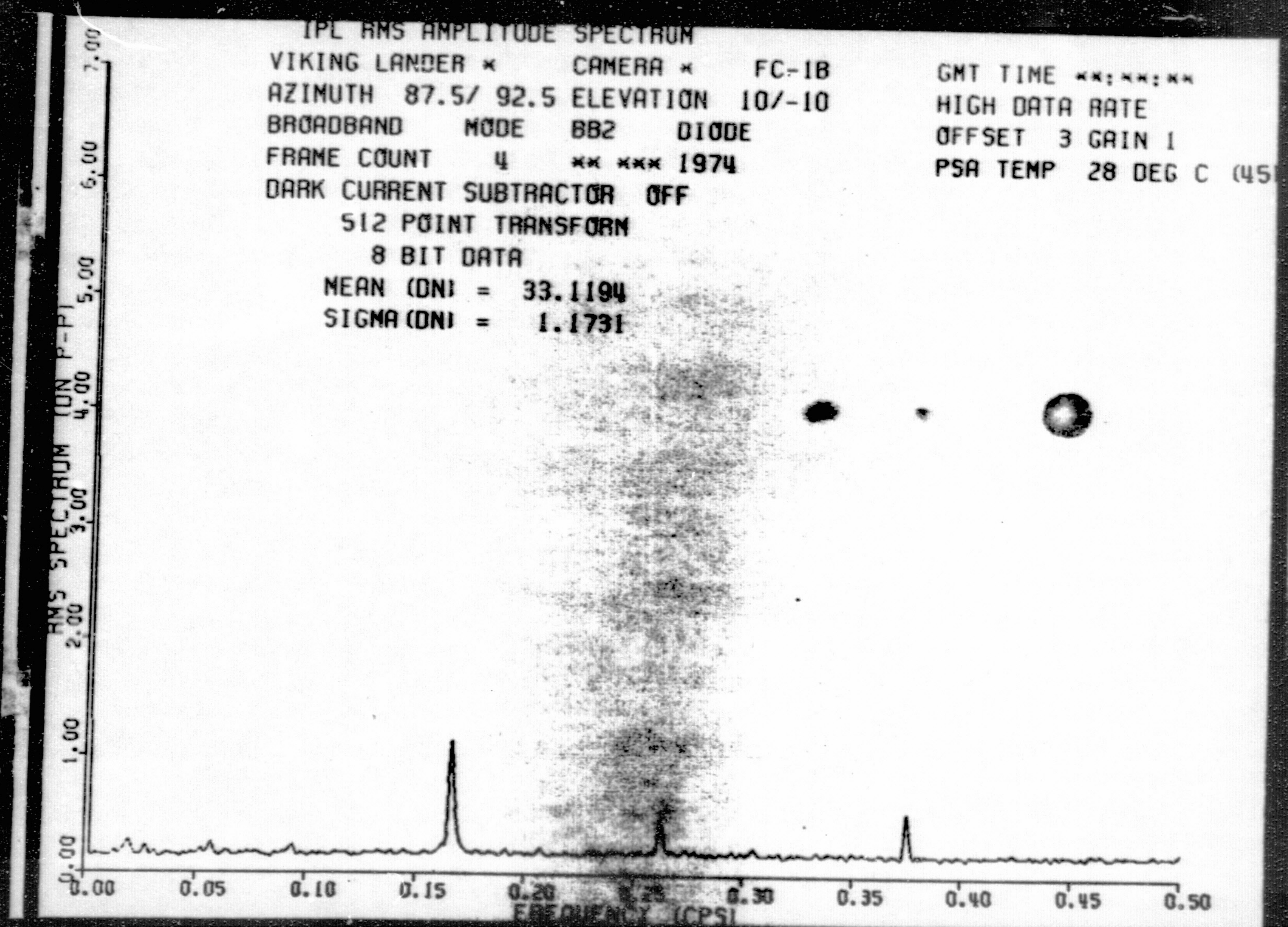

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 1 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.2946
SIGMA(DN) = 1.6008
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

282

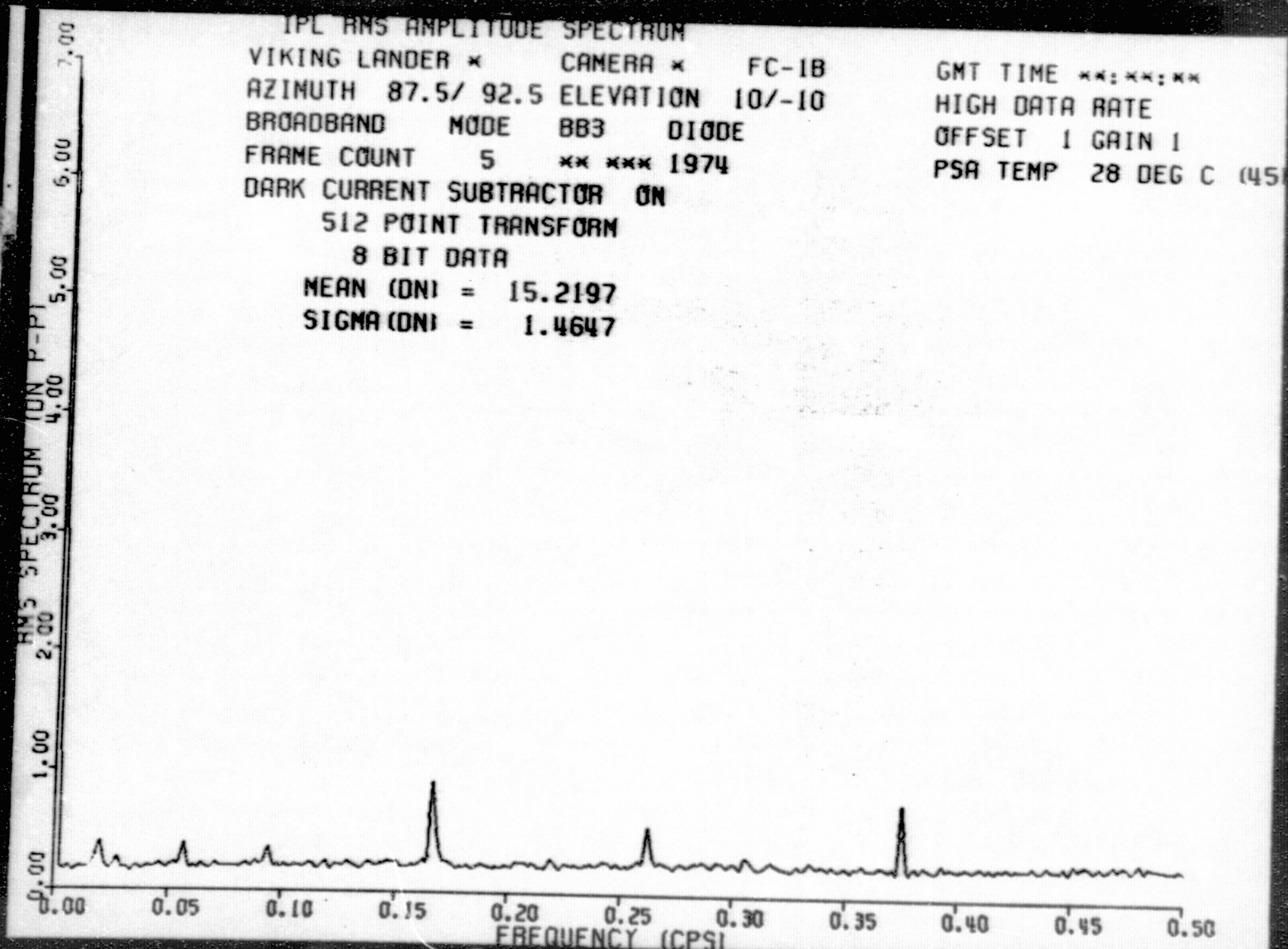

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-1B
AZIMUTH 87.5/ 92.5
ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 2 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 9.1787
SIGMA(DN) = 1.3317
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 28 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

283

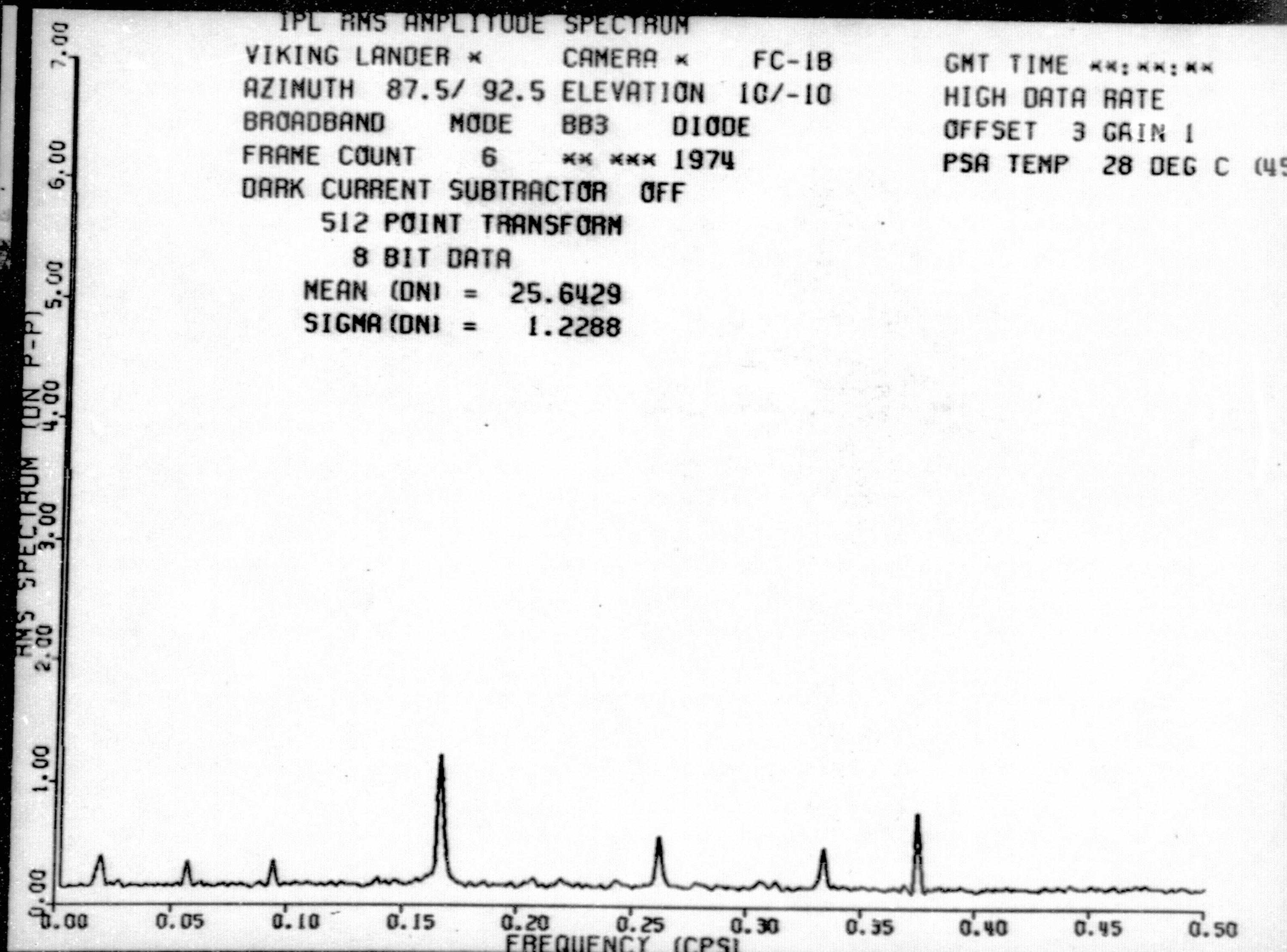

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 3 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.6796
SIGMA(DN) = 1.2260
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

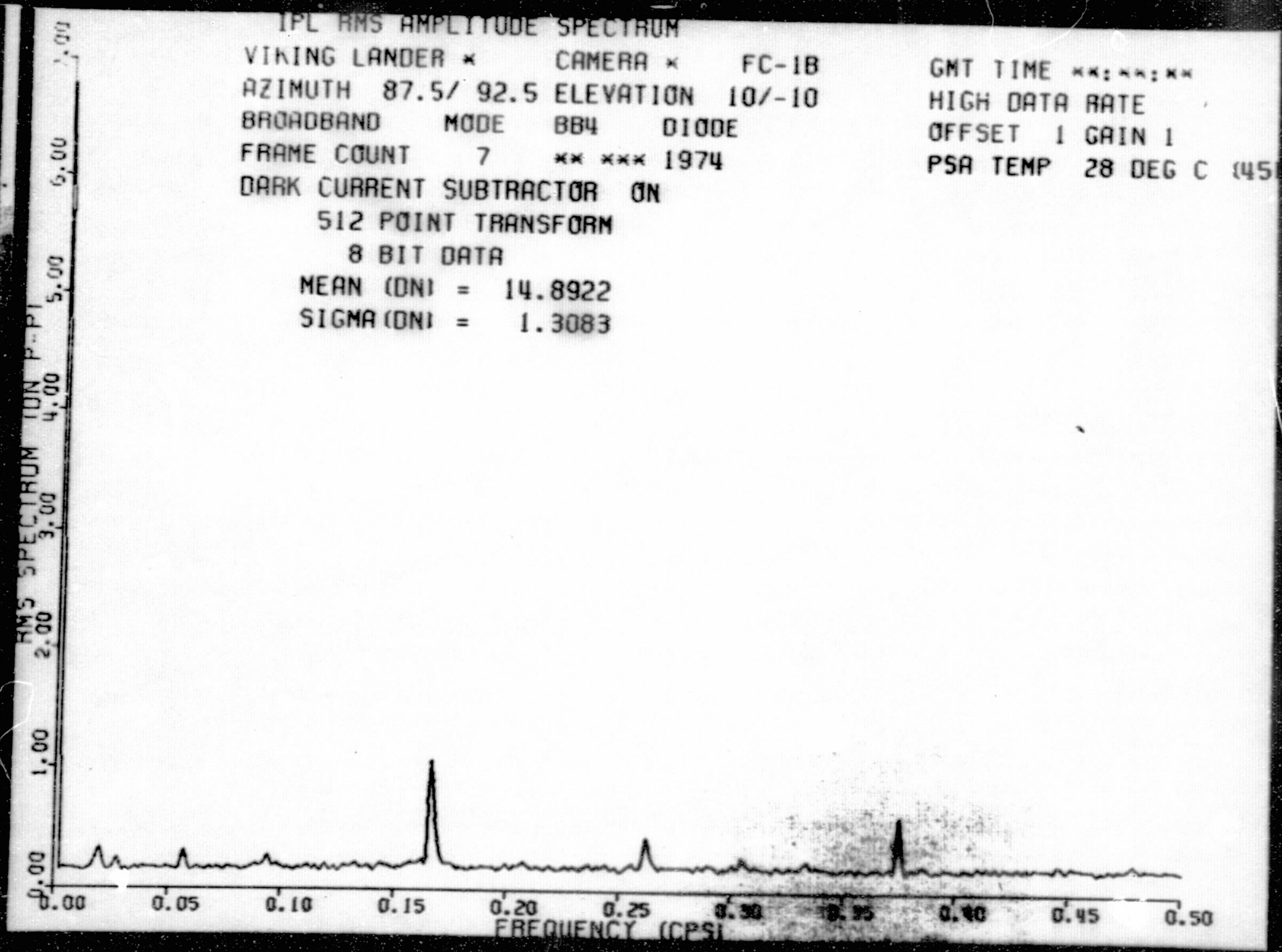

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 4 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 33.1194
SIGMA(DN) = 1.1731
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 28 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

285

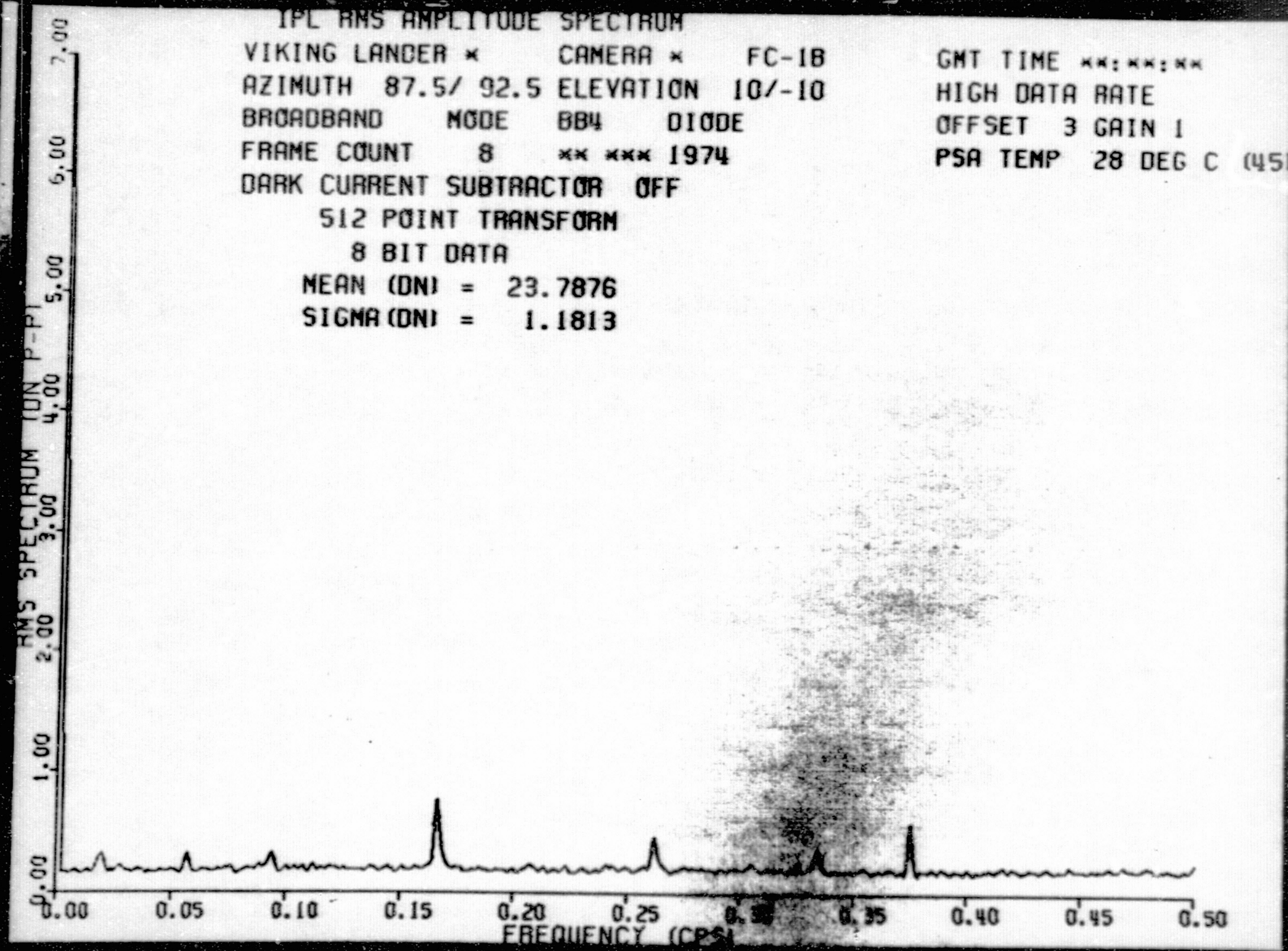

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   FC-1B
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND   MODE   BB3   DIODE
FRAME COUNT   5   ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.2197
SIGMA(DN) =   1.4647
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

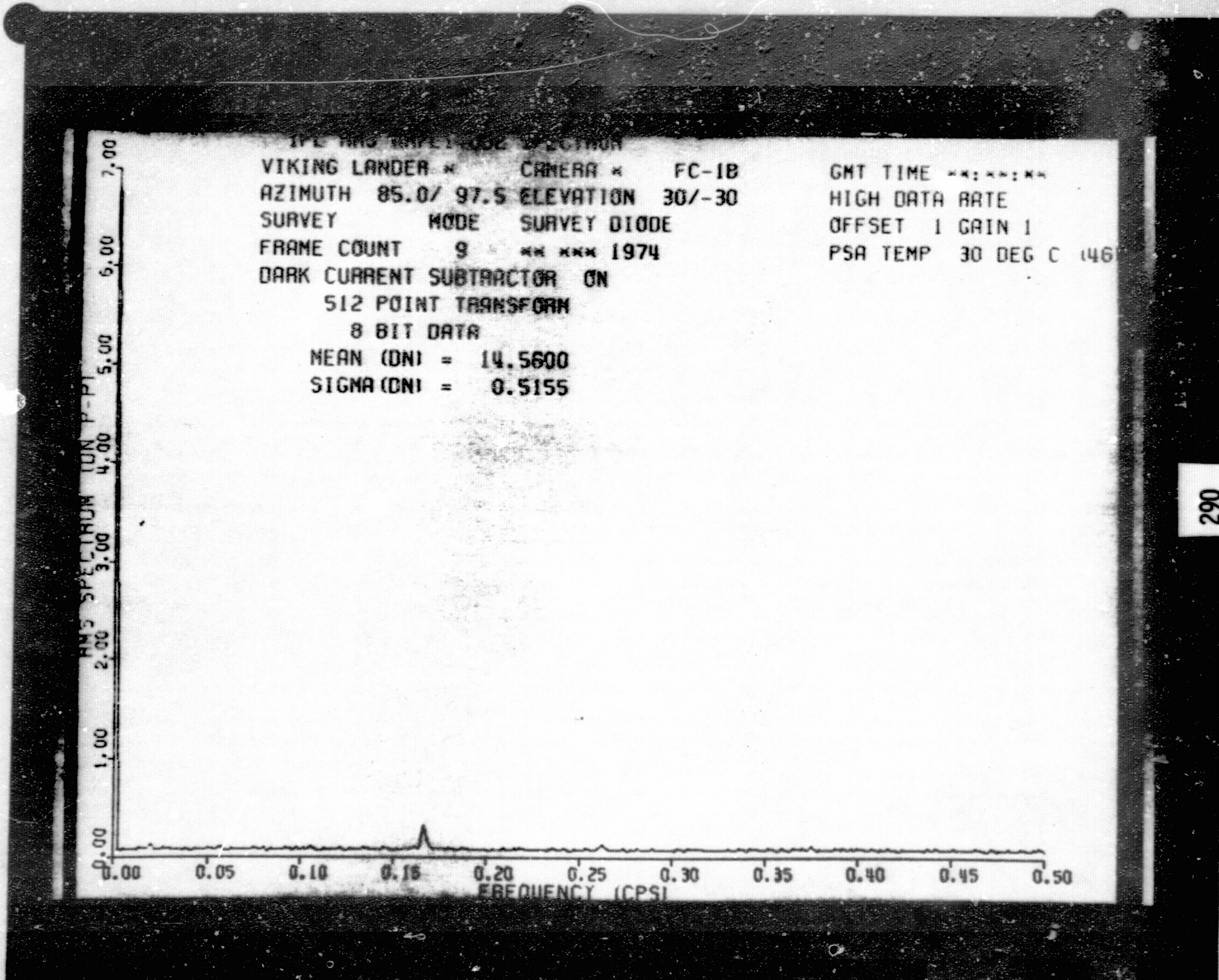
286

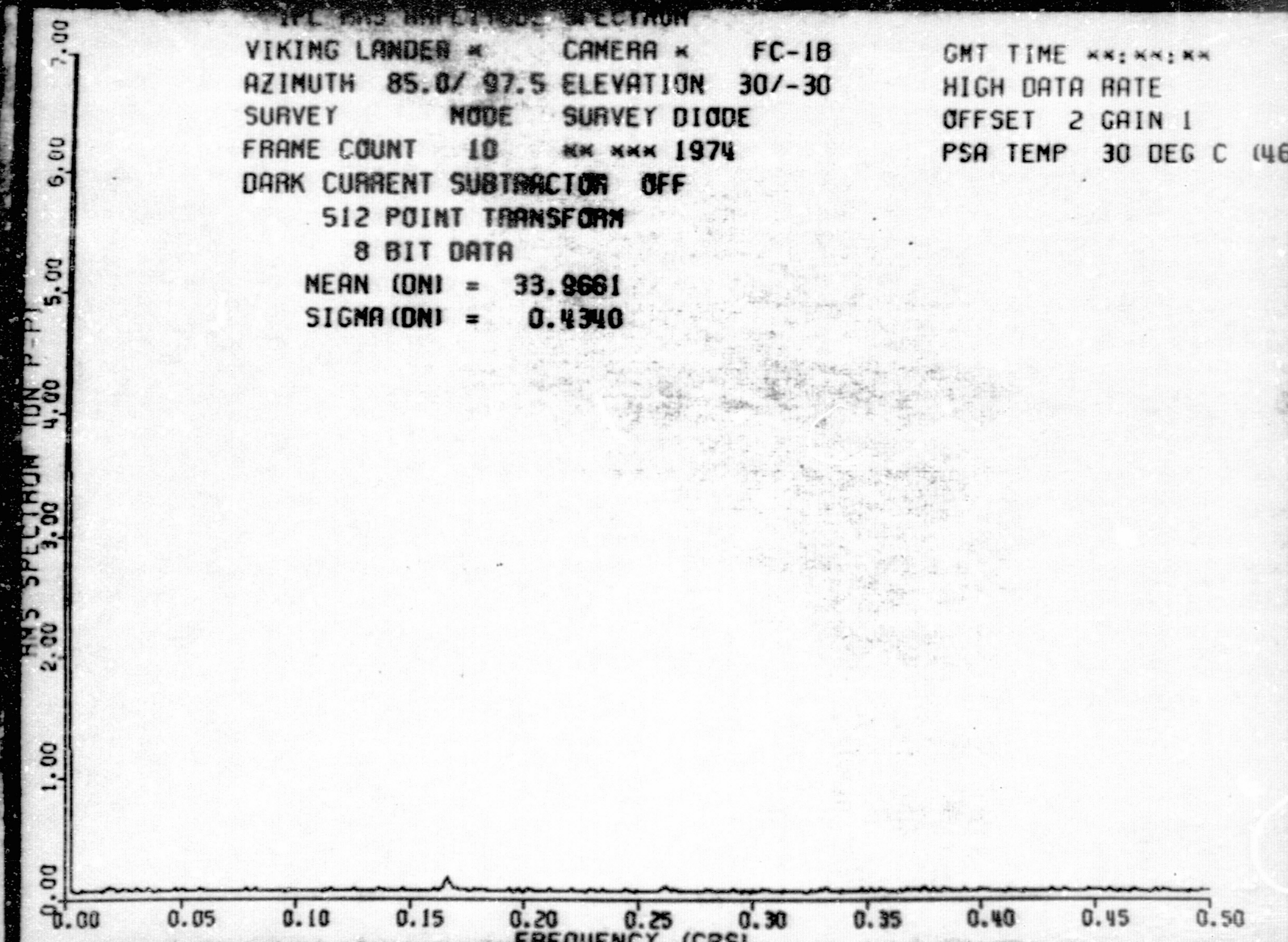

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER × CAMERA × FC-1B
GMT TIME ××:××:××
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB3 DIODE
OFFSET 3 GAIN 1
FRAME COUNT 6 ×× ××× 1974
PSA TEMP 28 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 25.6429
SIGMA (DN) = 1.2288
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

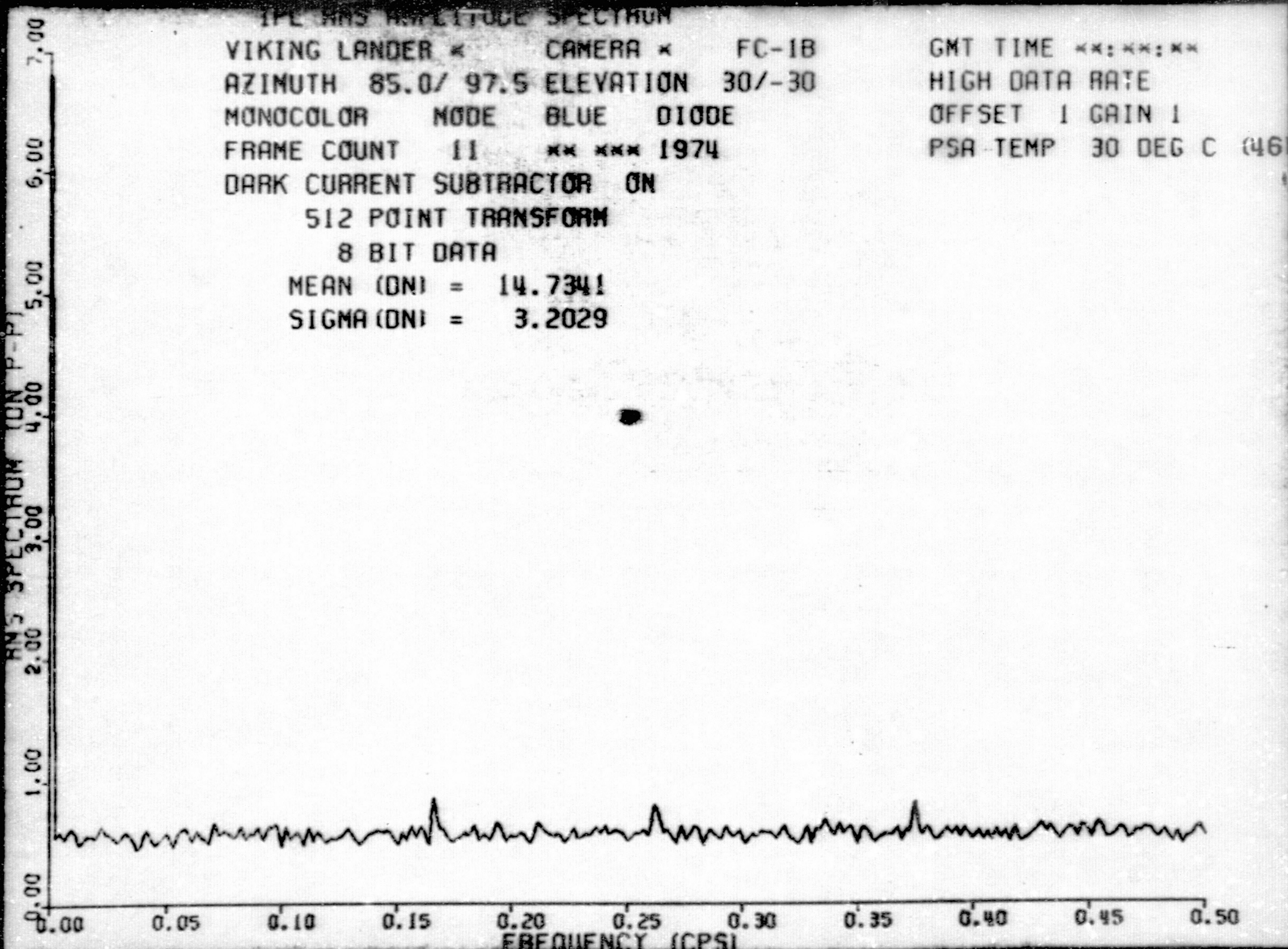

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB4 DIODE
FRAME COUNT 7 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.8922
SIGMA(DN) = 1.3083
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

288

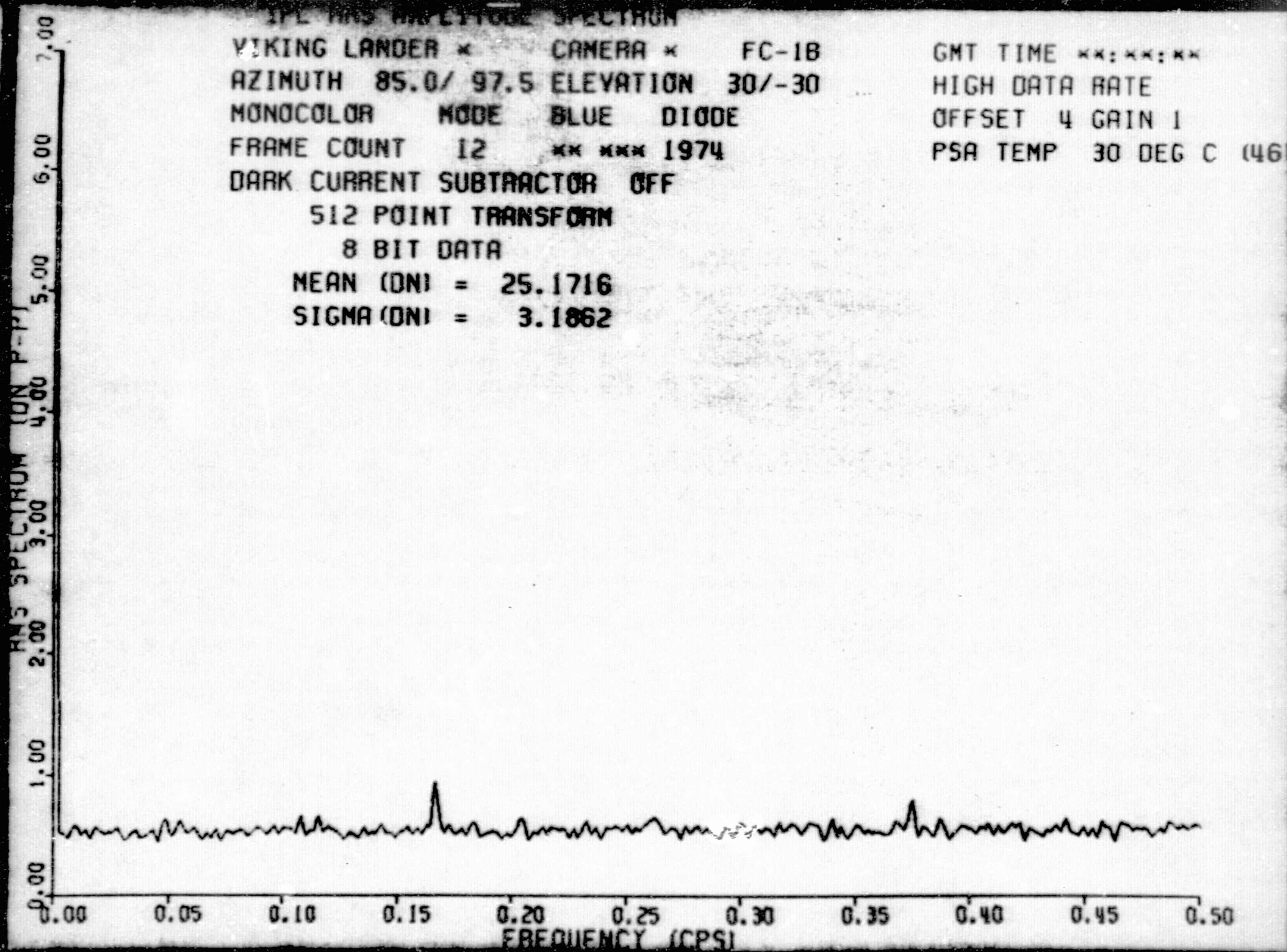

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB4 DIODE
FRAME COUNT 8 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 23.7876
SIGMA(DN) = 1.1813
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 28 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.35 0.40 0.45 0.50
FREQUENCY


VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 9 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.5600
SIGMA(DN) = 0.5155
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

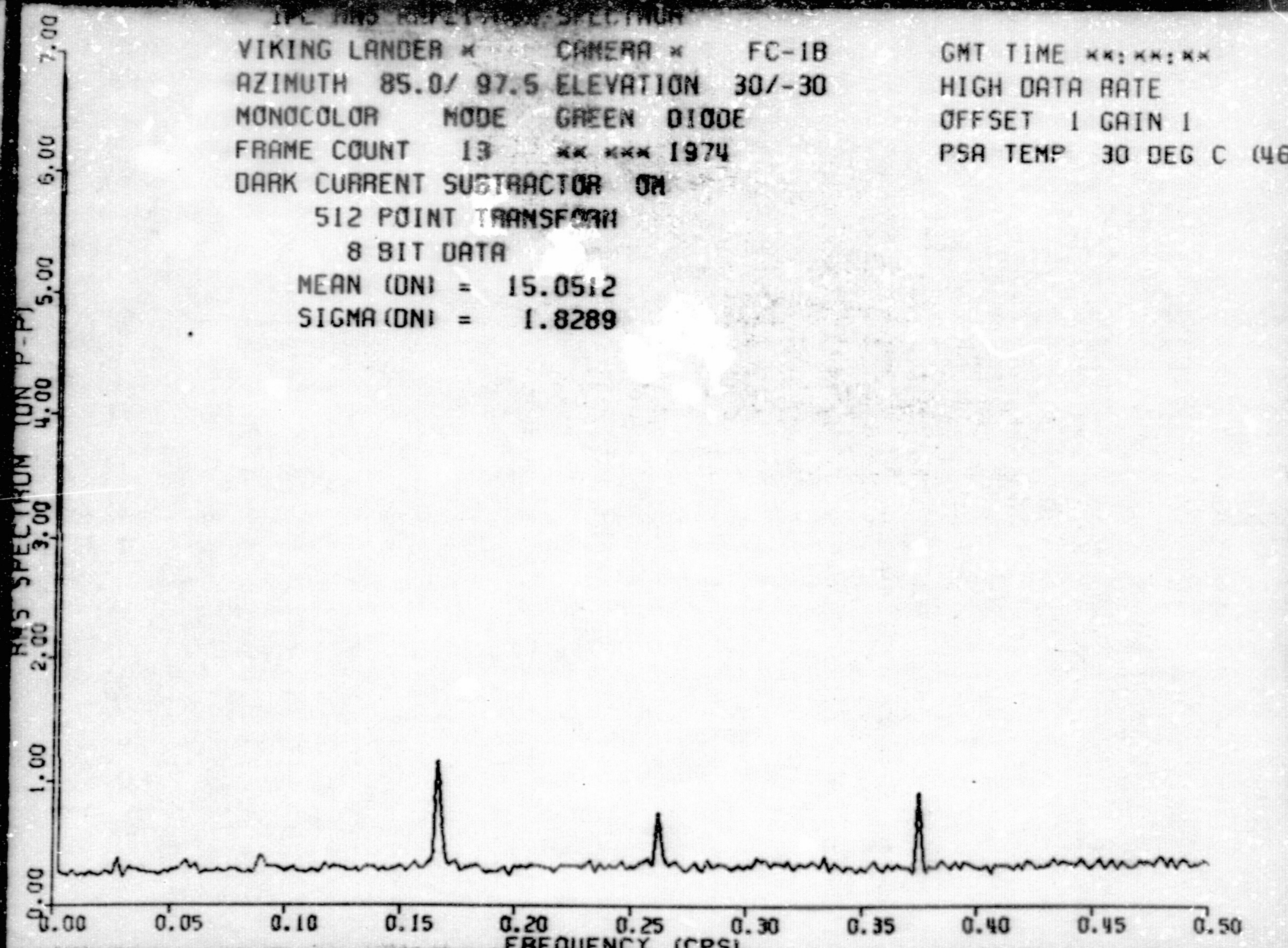

VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 10 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 33.9661
SIGMA (DN) = 0.4340
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 2 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

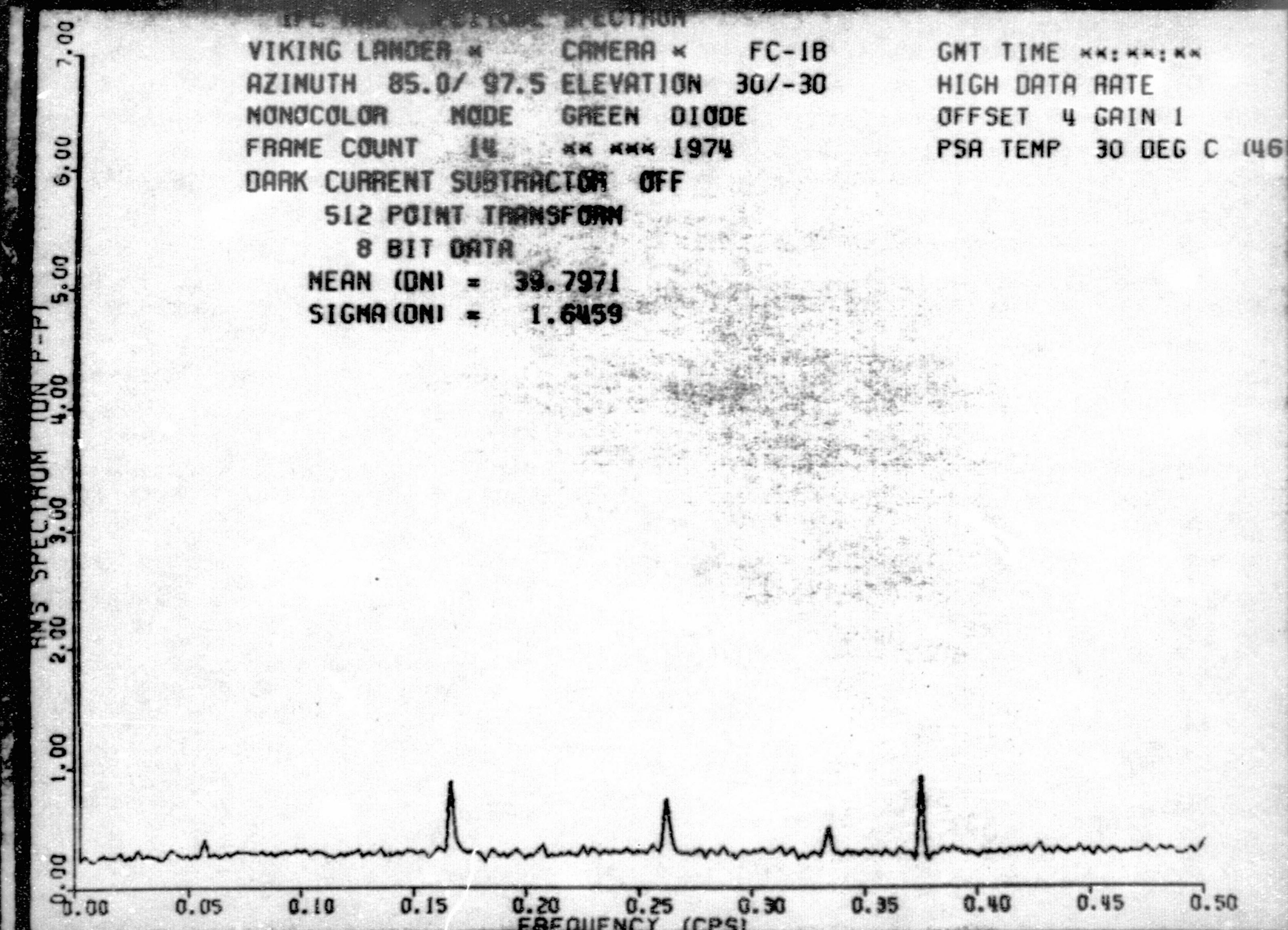


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE BLUE DIODE
FRAME COUNT 11 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.7341
SIGMA (DN) = 3.2029
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

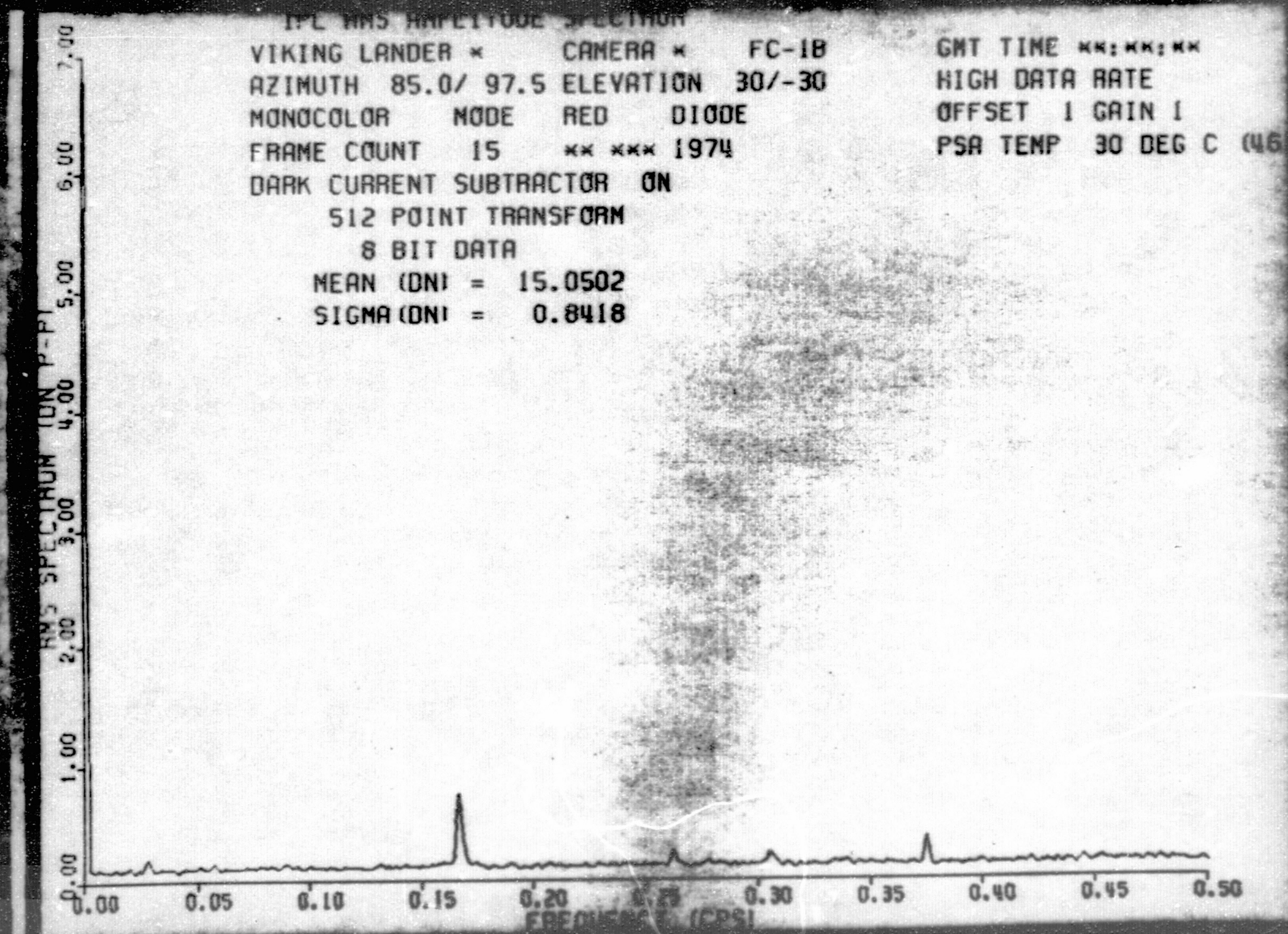

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE BLUE DIODE
FRAME COUNT 12 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 25.1716
SIGMA (DN) = 3.1862
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

293


VIKING LANDER × CAMERA × FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE GREEN DIODE
FRAME COUNT 13 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.0512
SIGMA(DN) = 1.8289
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

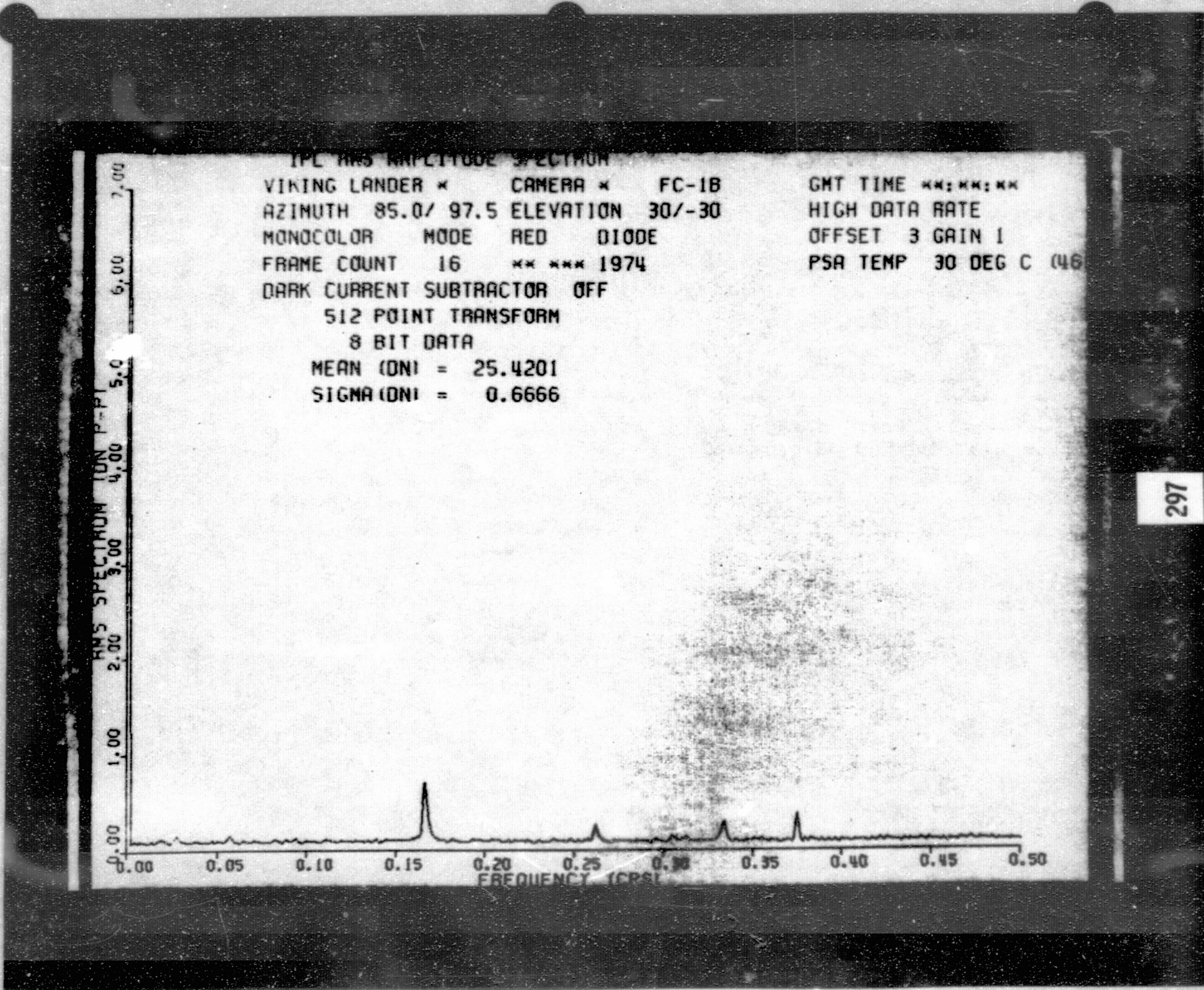

VIKING LANDER *
CAMERA *
FC-1B
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE GREEN DIODE
OFFSET 4 GAIN 1
FRAME COUNT 14 ** *** 1974
PSA TEMP 30 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 39.7971
SIGMA(DN) = 1.6459
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

295



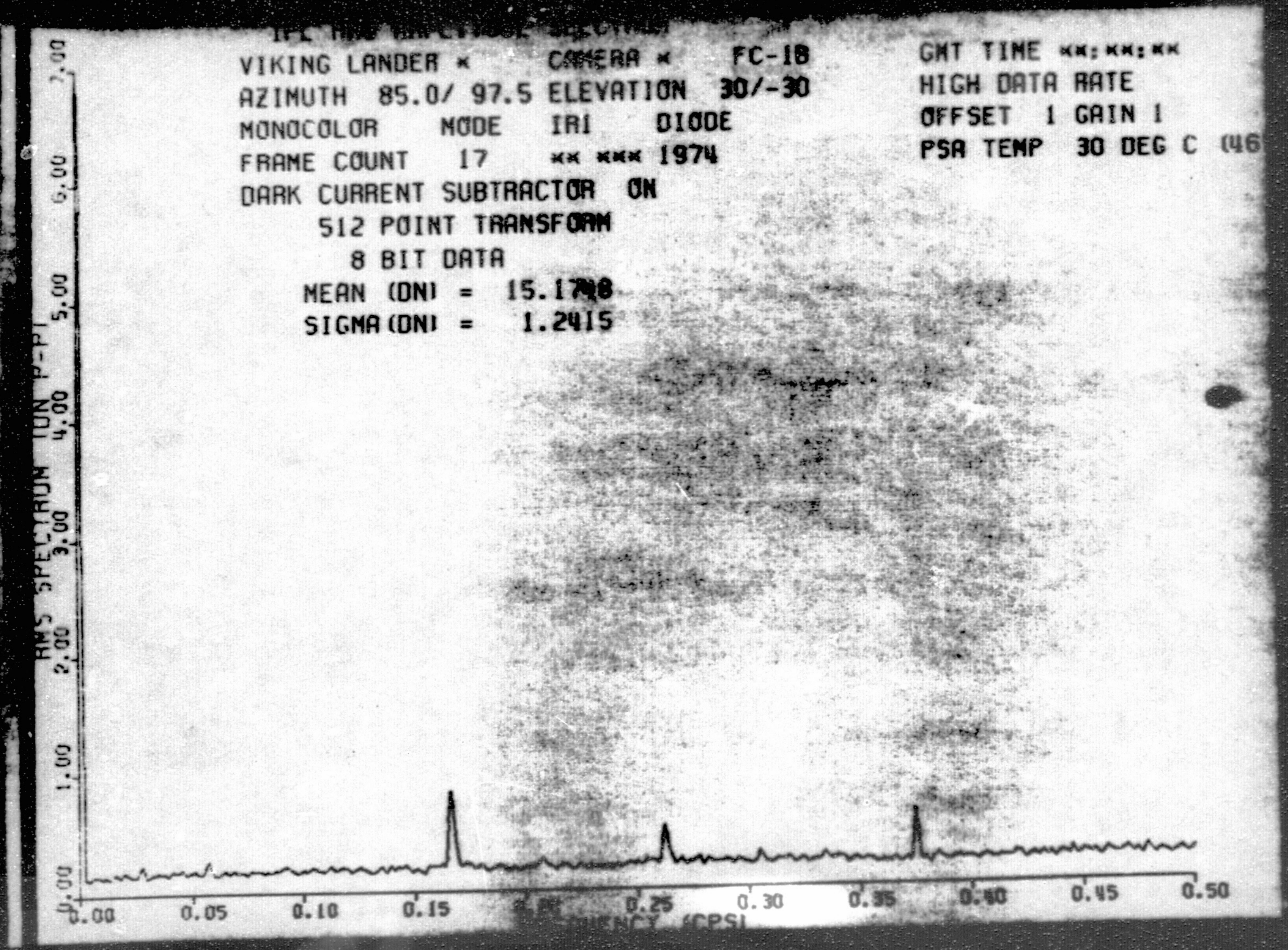
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE RED DIODE
FRAME COUNT 15 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.0502
SIGMA (DN) = 0.8418
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

296



VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE RED DIODE
FRAME COUNT 16 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 25.4201
SIGMA(DN) = 0.6666
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

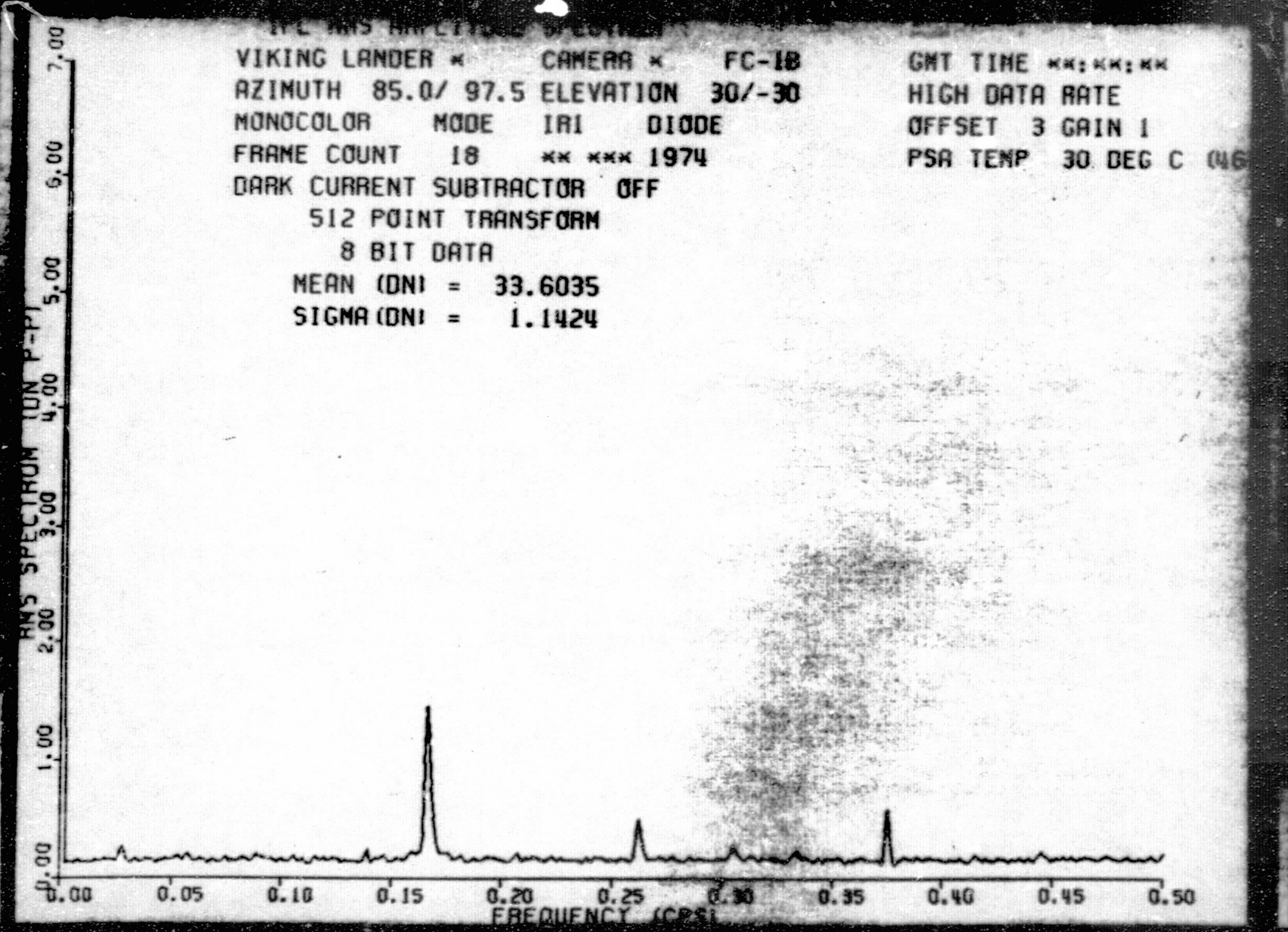
297

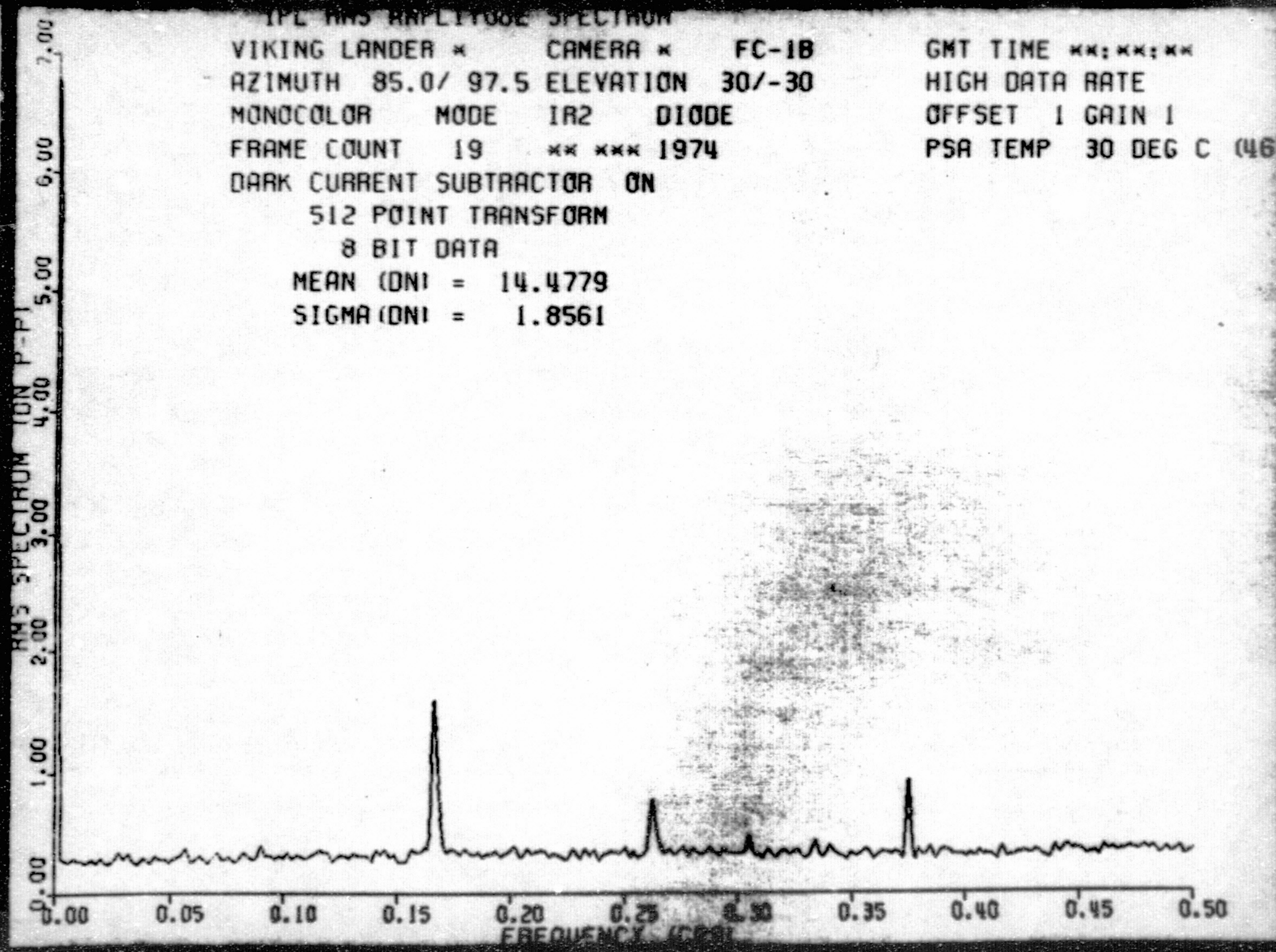


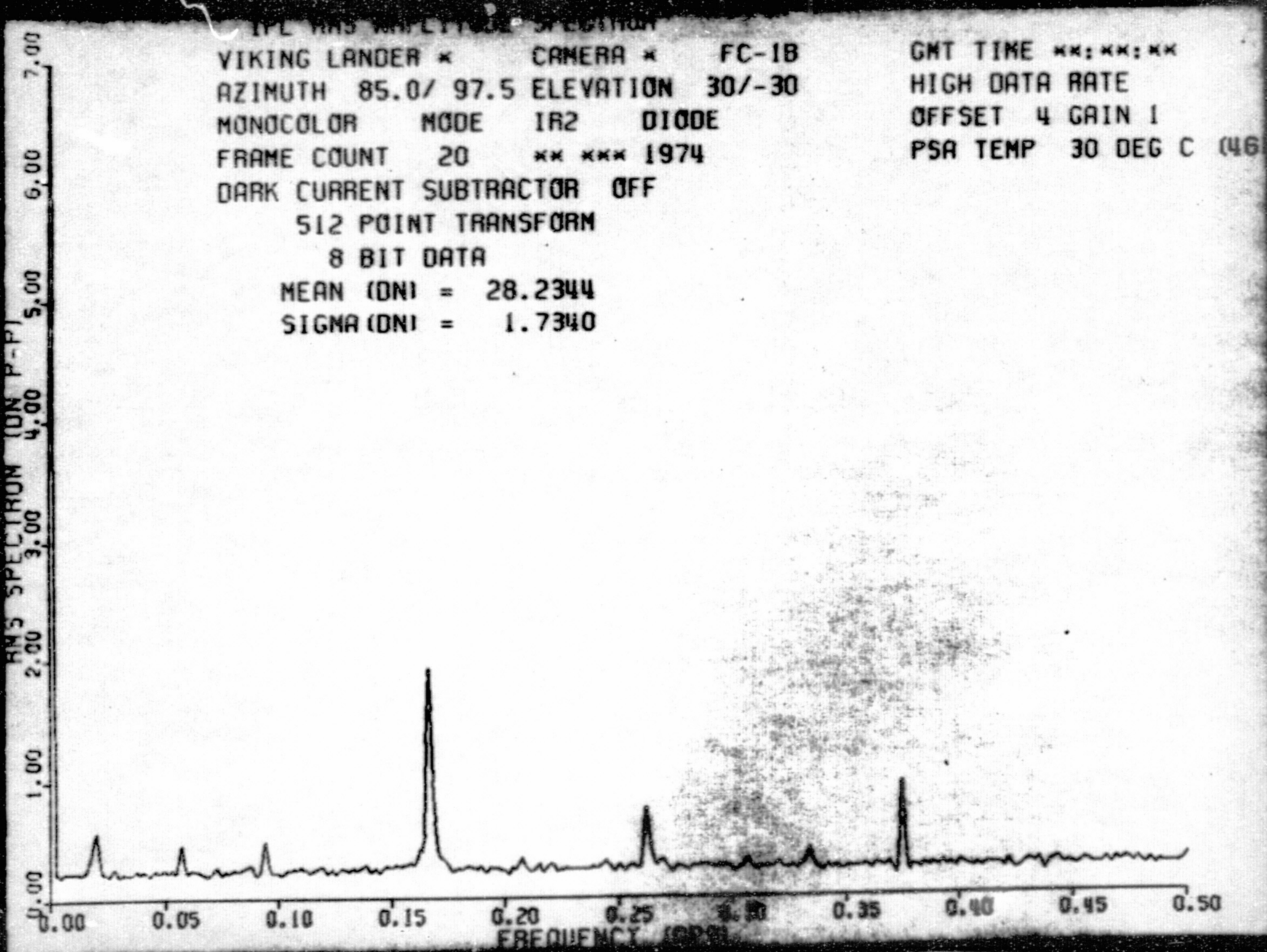
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR1 DIODE
FRAME COUNT 17 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.1748
SIGMA(DN) = 1.2415
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.25
0.30
0.35
0.40
0.45
0.50

298

29

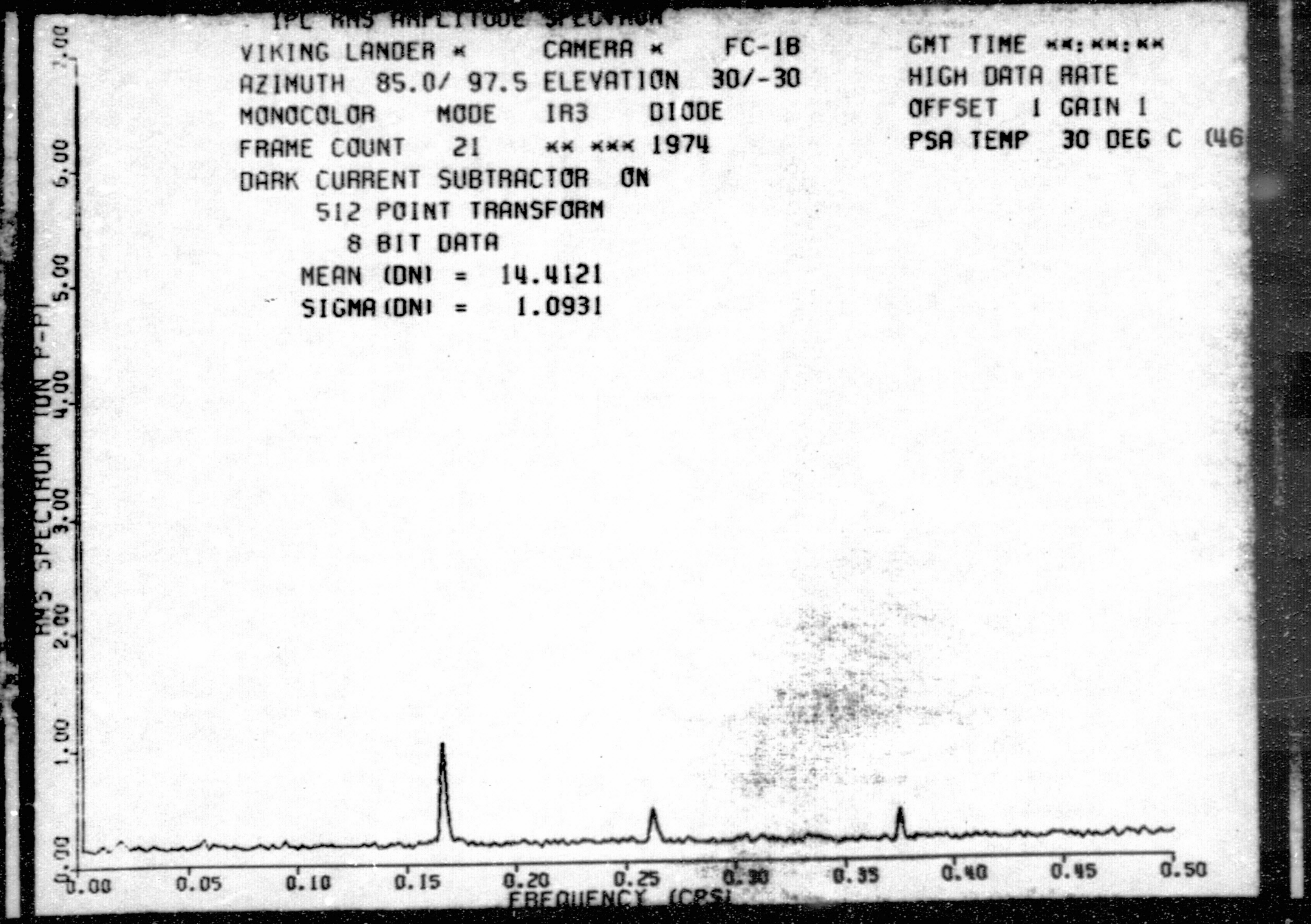

VIKING LANDER * CAMERA * FC-18 GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IRI DIODE
OFFSET 3 GAIN 1
FRAME COUNT 18 ** *** 1974
PSA TEMP 30 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 33.6035
SIGMA (DN) = 1.1424
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR2 DIODE
OFFSET 1 GAIN 1
FRAME COUNT 19 ** *** 1974
PSA TEMP 30 DEG C (46
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.4779
SIGMA (DN) = 1.8561
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

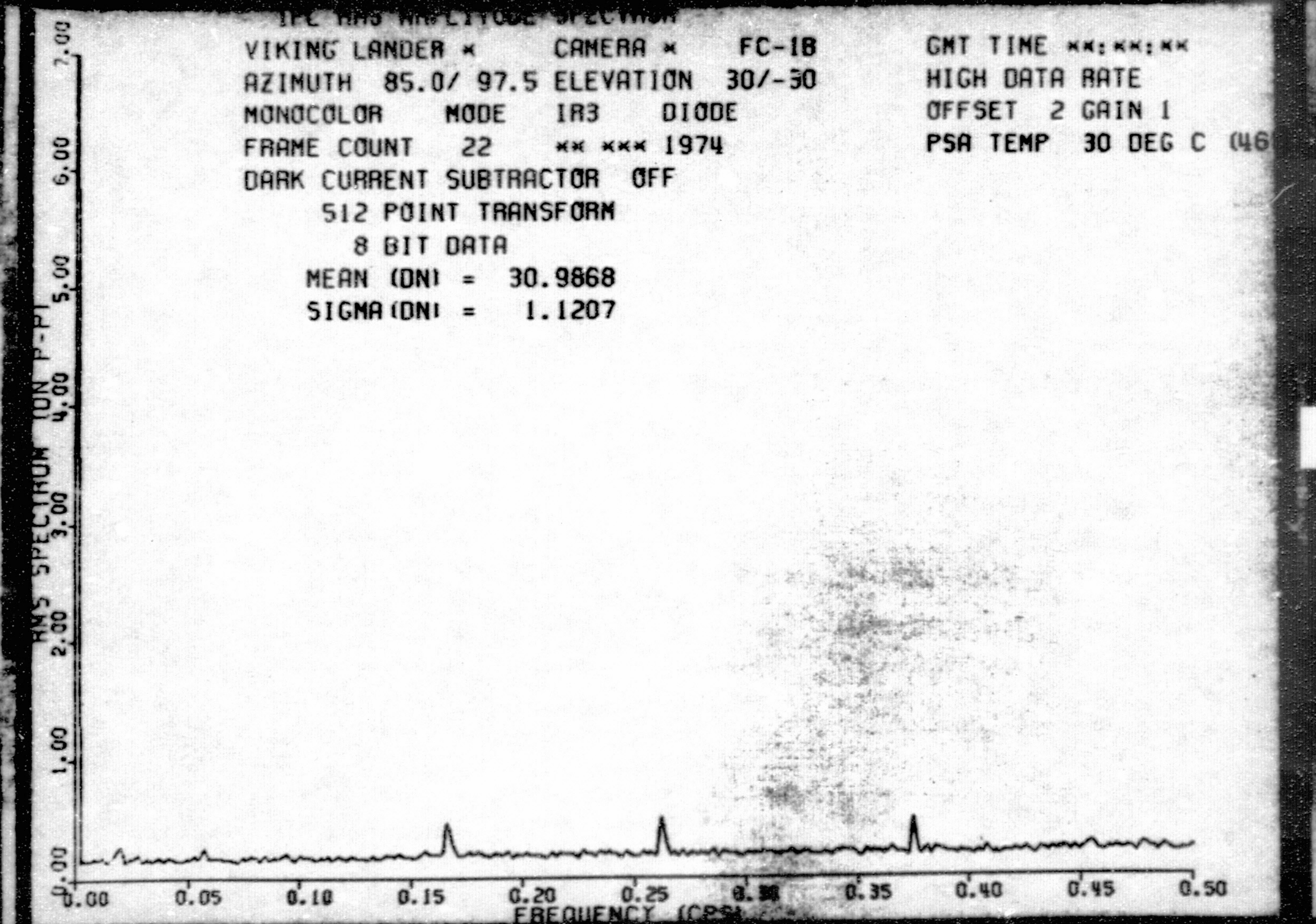


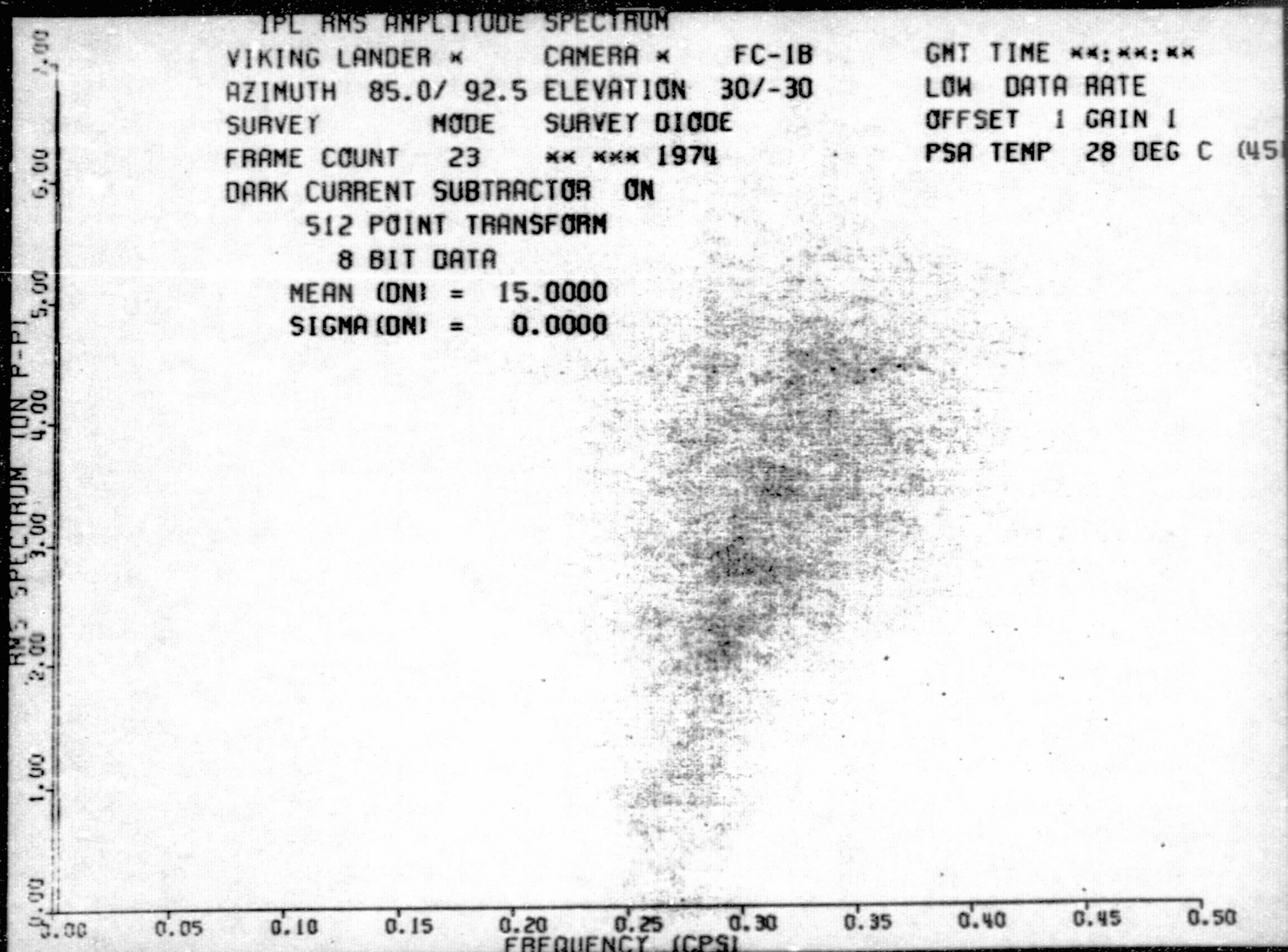
VIKING LANDER * CAMERA * FC-1B
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR2 DIODE
OFFSET 4 GAIN 1
FRAME COUNT 20 ** *** 1974
PSA TEMP 30 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 28.2344
SIGMA (DN) = 1.7340
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.35
0.40
0.45
0.50

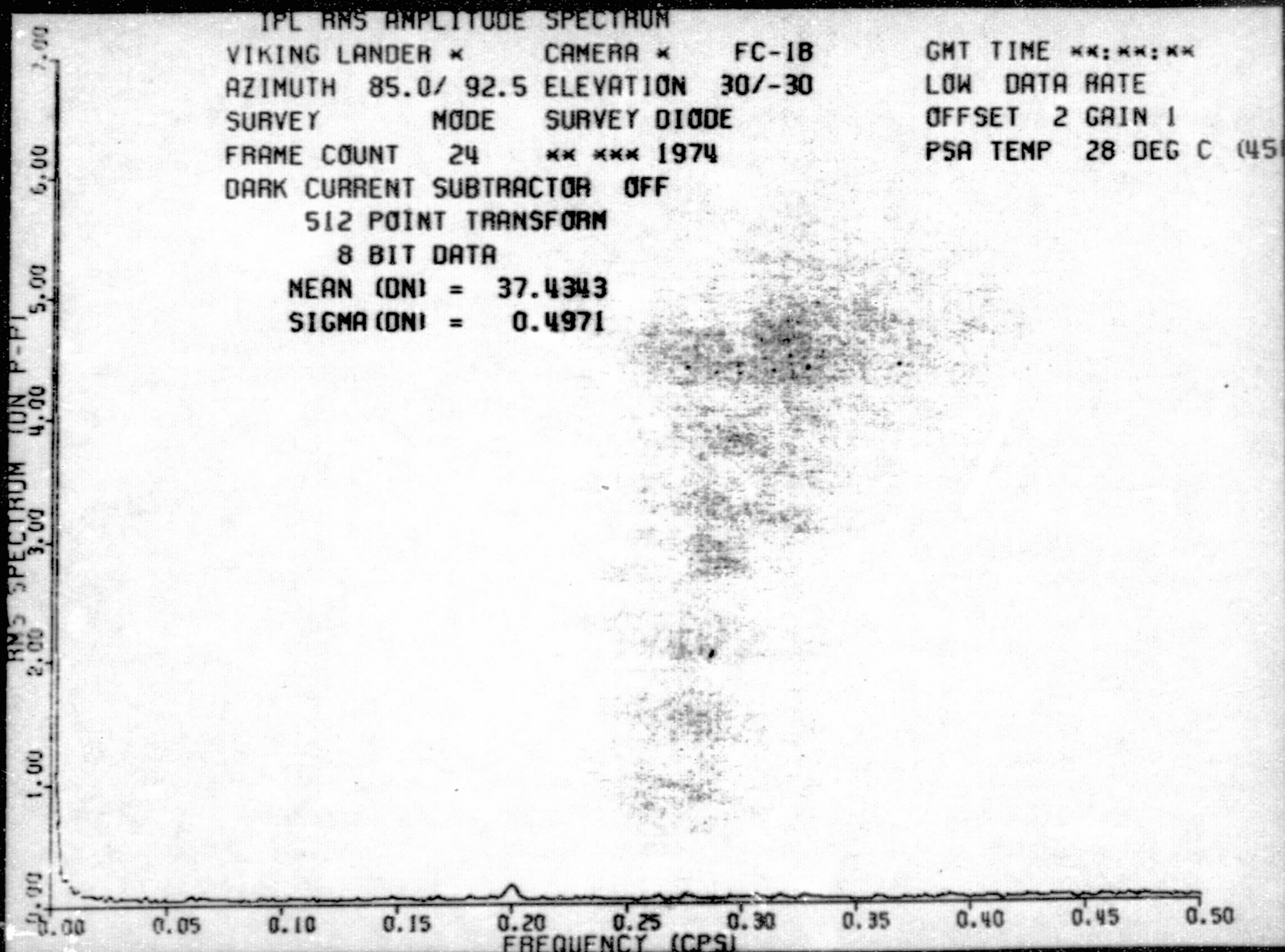
301


VIKING LANDER *   CAMERA *   FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR3 DIODE
FRAME COUNT 21 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.4121
SIGMA(DN) = 1.0931
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

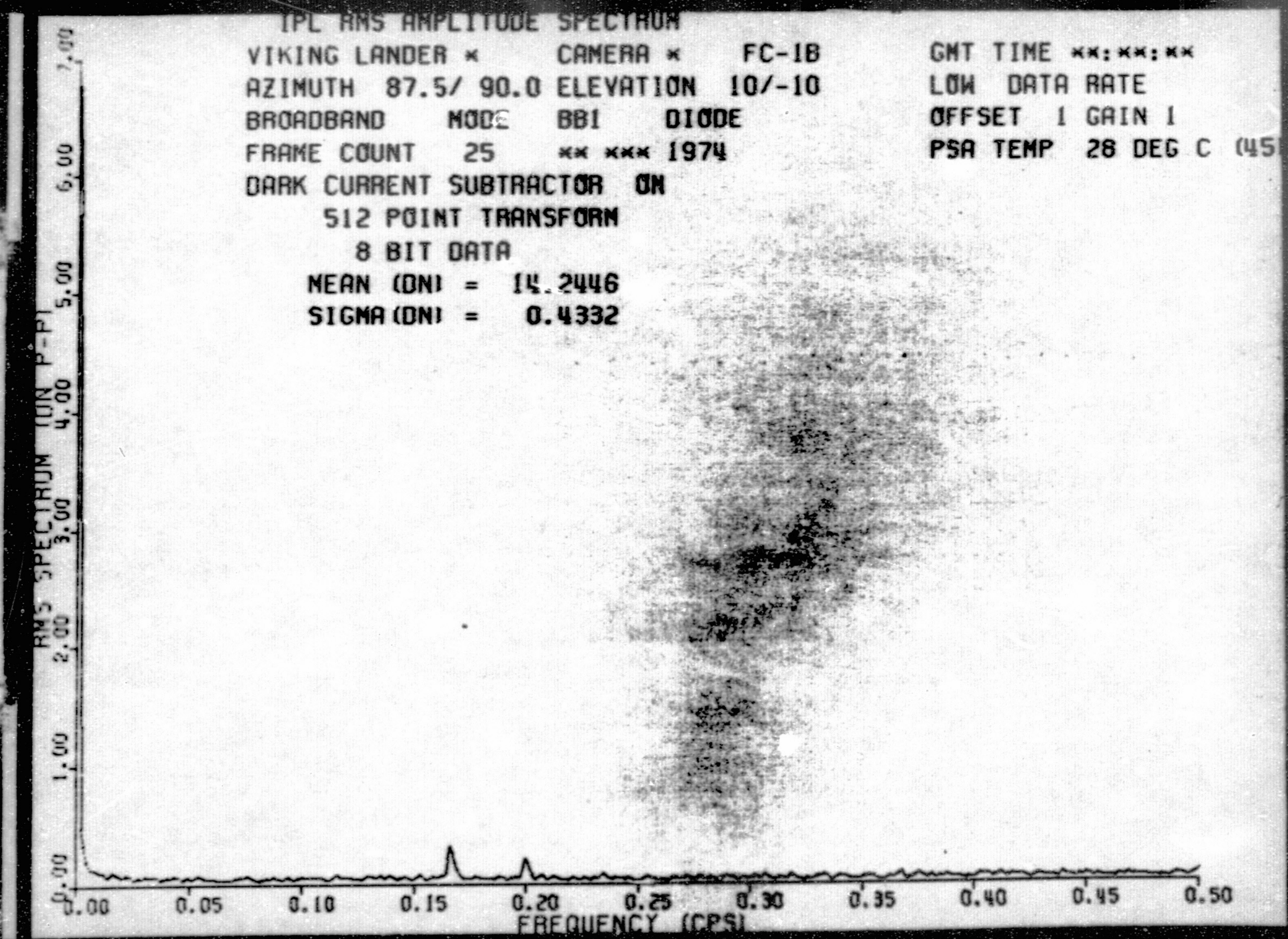
302

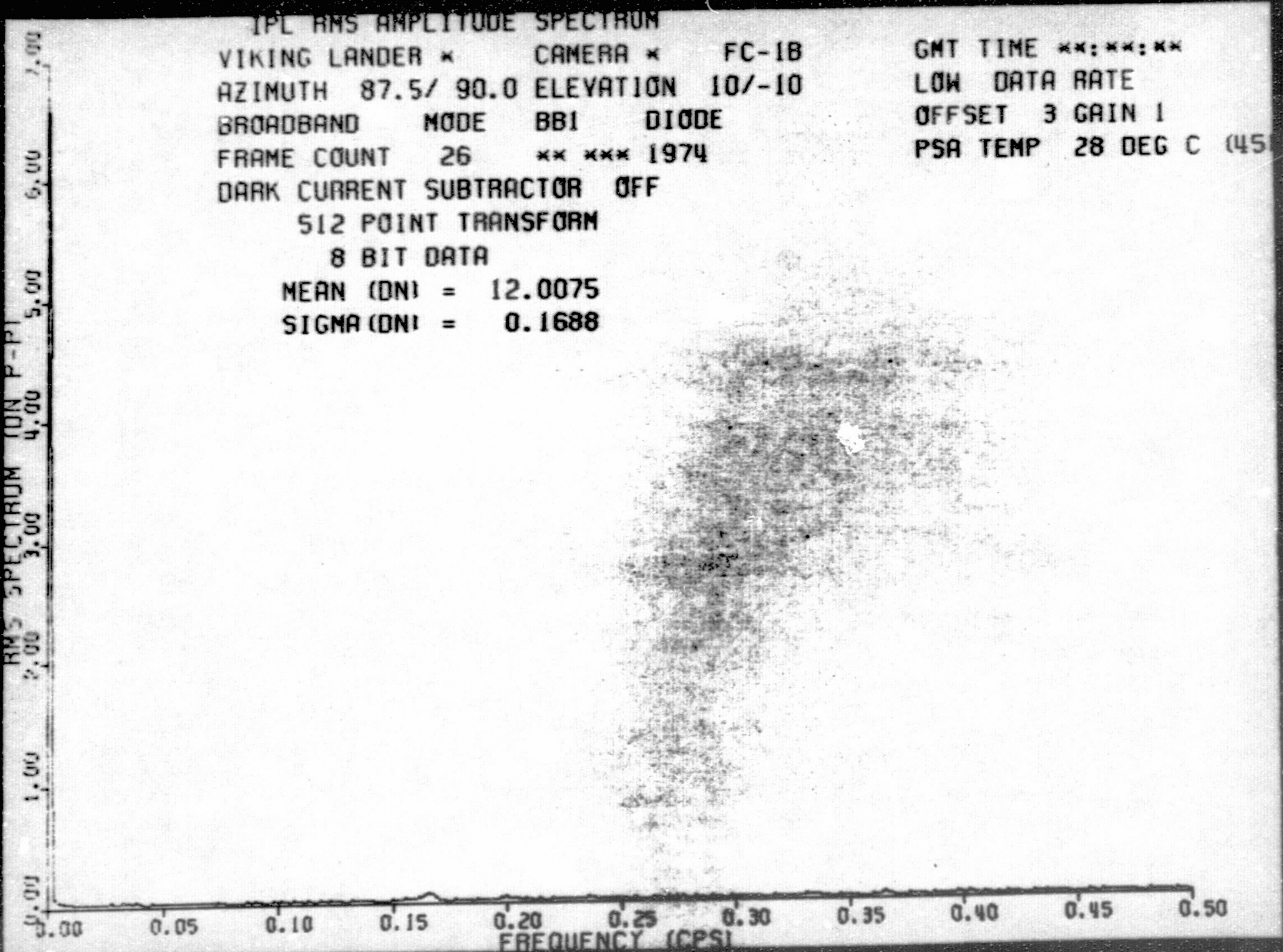

VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR3 DIODE
FRAME COUNT 22 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 30.9868
SIGMA(DN) = 1.1207
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 2 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.35
0.40
0.45
0.50


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 23 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.0000
SIGMA (DN) = 0.0000
GMT TIME **:**:**
LOW DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

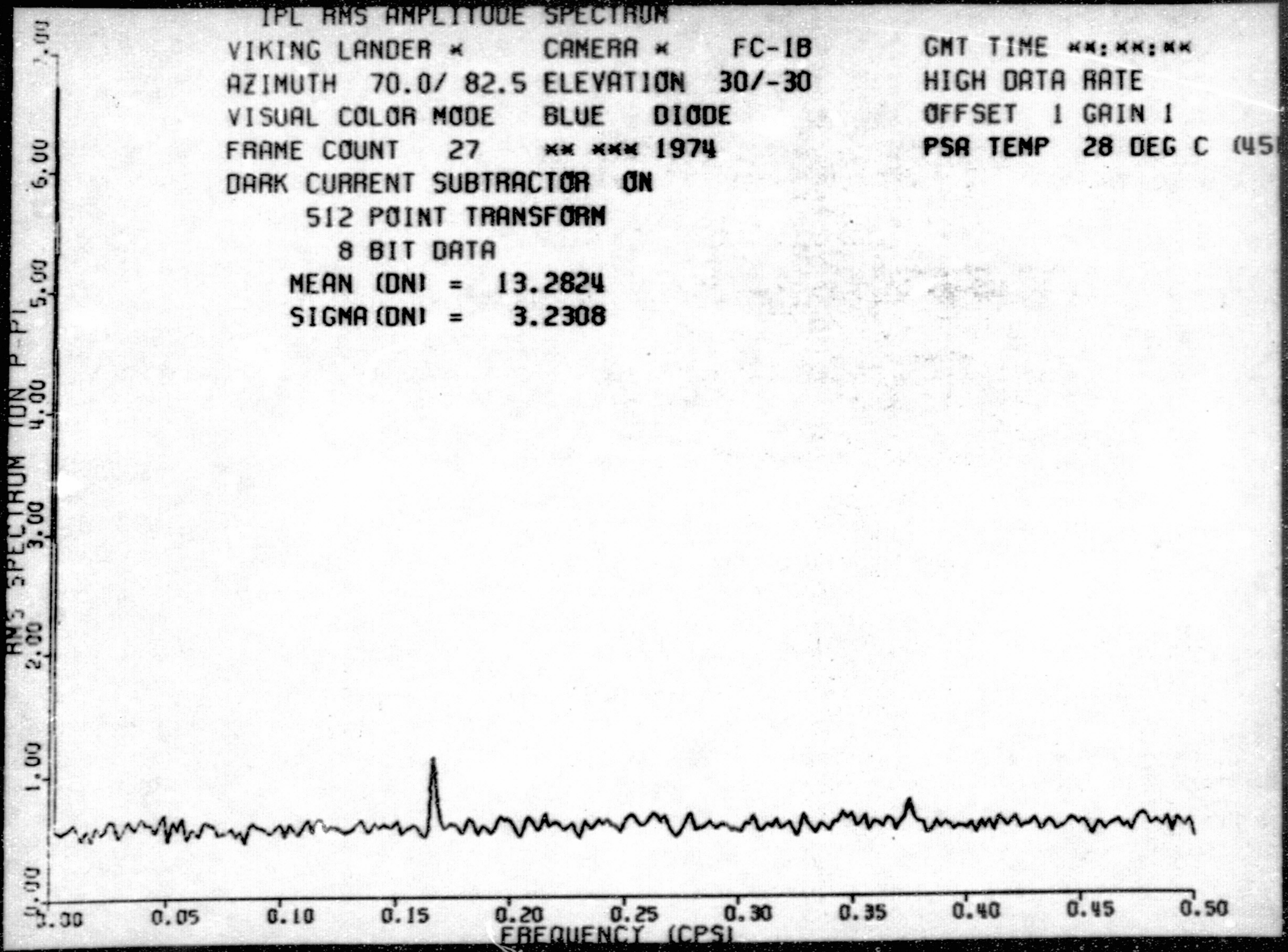

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 24 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 37.4343
SIGMA(DN) = 0.4971
GMT TIME **:**:**
LOW DATA RATE
OFFSET 2 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

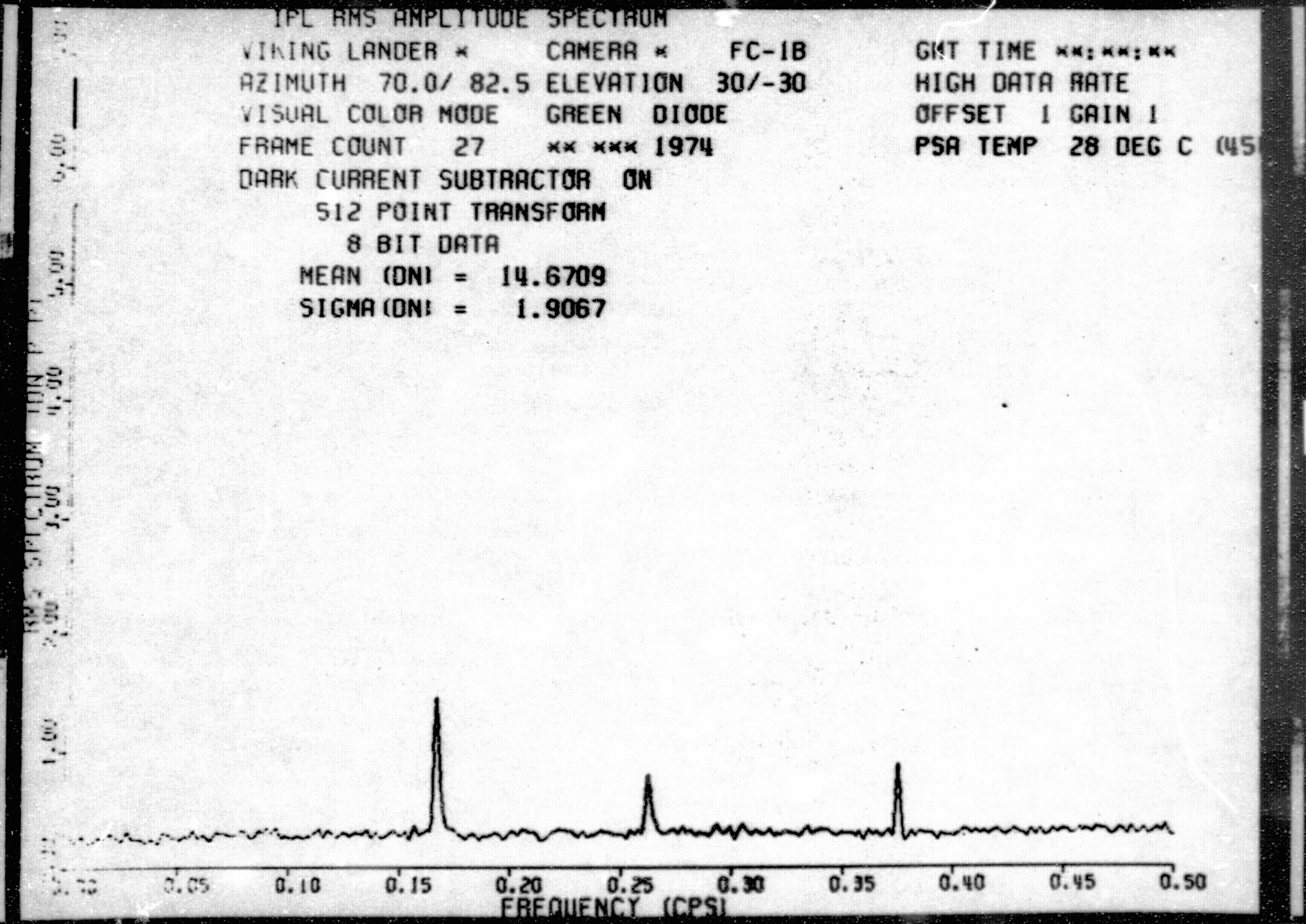
305

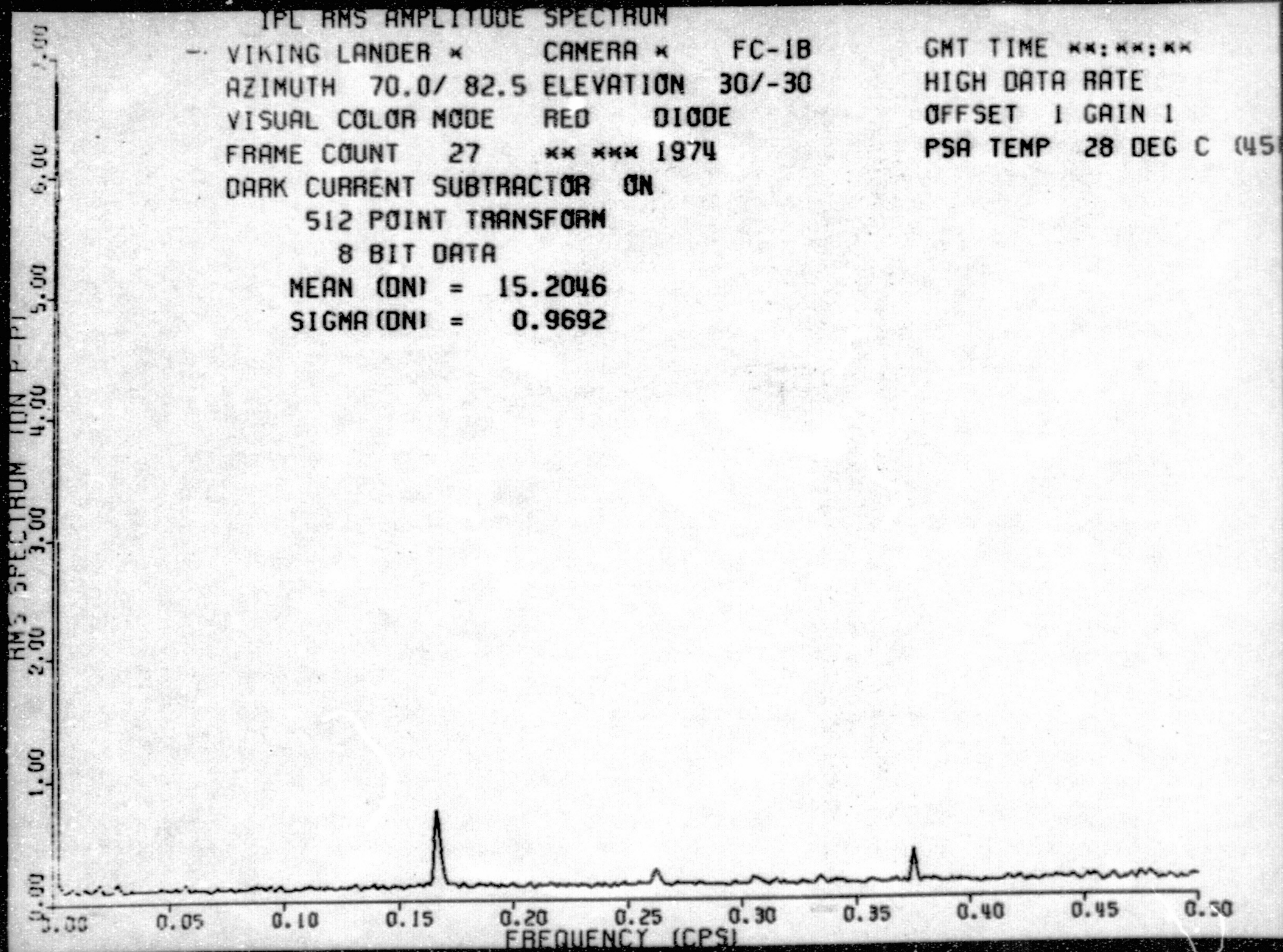

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 25 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.2446
SIGMA(DN) = 0.4332
GMT TIME **:**:**
LOW DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 26 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 12.0075
SIGMA (DN) = 0.1688
GMT TIME **:**:**
LOW DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

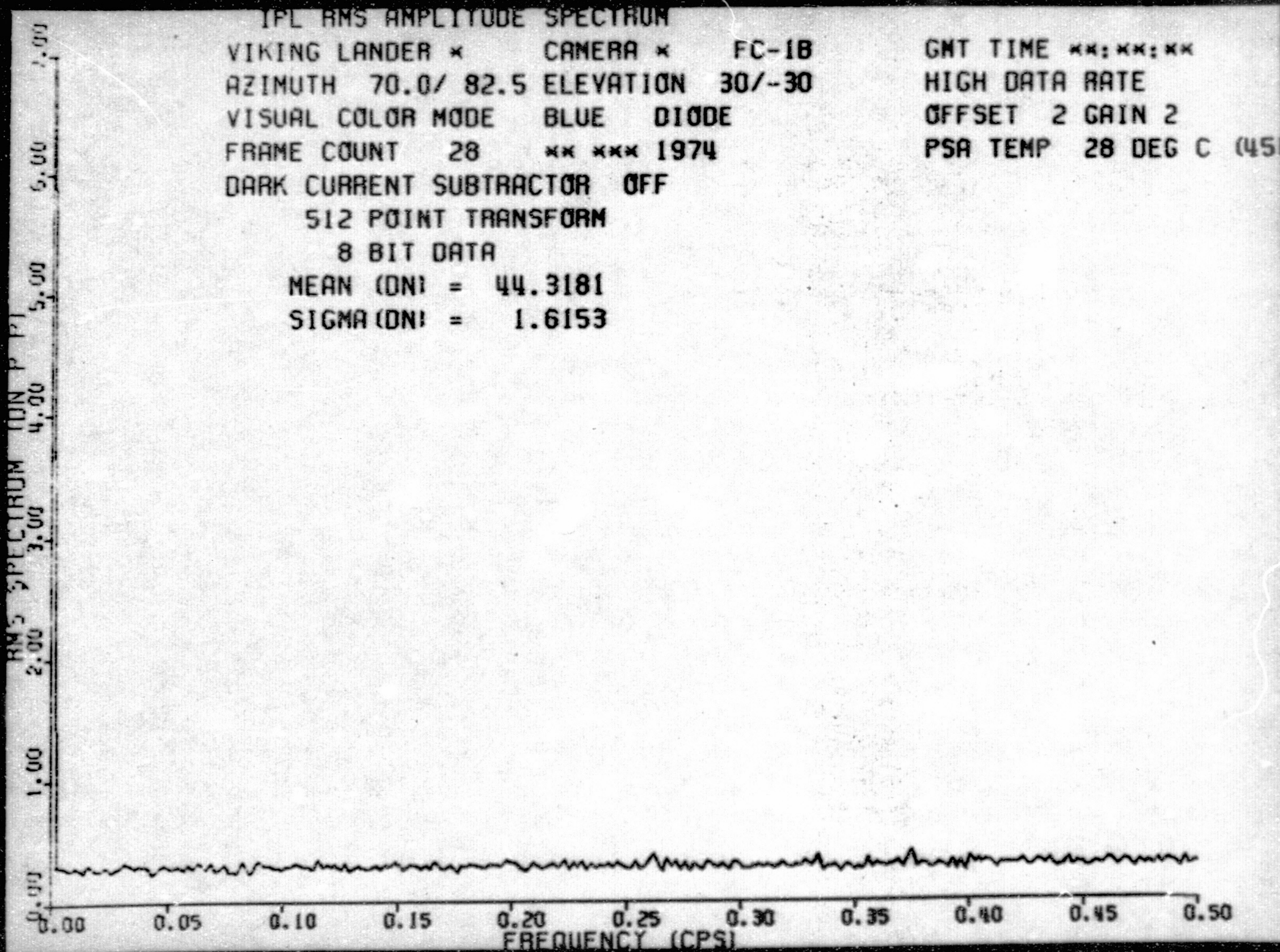
307


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-1B
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
BLUE DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27
** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.2824
SIGMA(DN) = 3.2308
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-1B
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
GREEN DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27
** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.6709
SIGMA(DN) = 1.9067
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

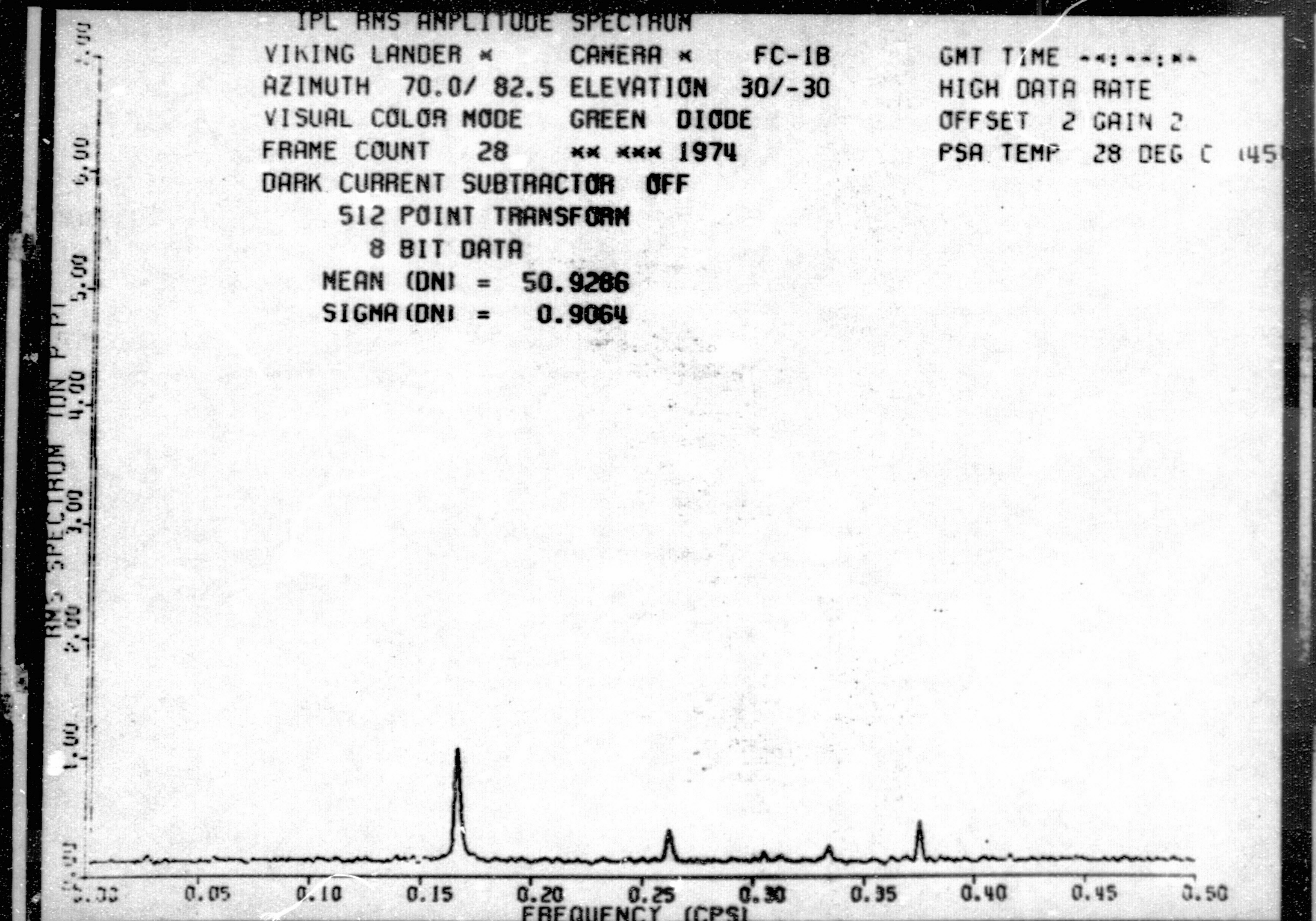

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
VISUAL COLOR MODE RED DIODE
FRAME COUNT 27 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.2046
SIGMA(DN) = 0.9692
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

310



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER ×
CAMERA ×
FC-1B
GMT TIME ××:××:××
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
BLUE
DIODE
OFFSET 2 GAIN 2
FRAME COUNT 28
×× ××× 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 44.3181
SIGMA (DN) = 1.6153
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

311


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-1B GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30 HIGH DATA RATE
VISUAL COLOR MODE GREEN DIODE OFFSET 2 GAIN 2
FRAME COUNT 28 ** *** 1974 PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 50.9286
SIGMA(DN) = 0.9064
RMS SPECTRUM (DN P-P)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

312

IPL RMS AMPLITUDE SPECTRUM

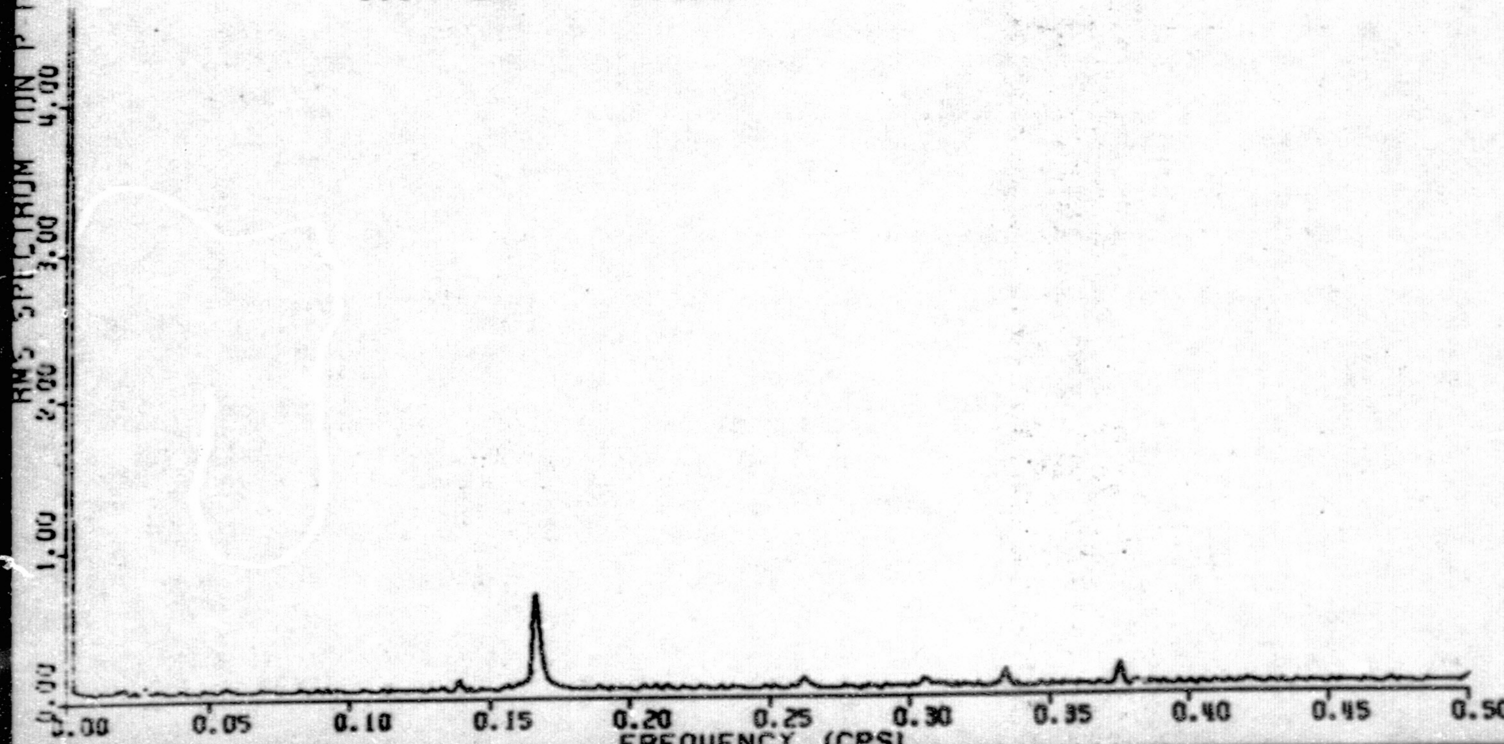
VIKING LANDER × CAMERA × FC-1B GMT TIME ××:××:××
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30 HIGH DATA RATE
VISUAL COLOR MODE RED DIODE OFFSET 2 GAIN 2
FRAME COUNT 28 ×× ××× 1974 PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR OFF

512 POINT TRANSFORM

8 BIT DATA

MEAN (DN) = 28.3461

SIGMA (DN) = 0.4936



313

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 1/5/75

CALIBRATION RUN POINT SPREAD FUNCTION, FC-1B CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Listings of the pixel matrix in an area around the illuminated pin hole target.

Two listings for each of the Broadband, Visual Color and IR Diodes are included, with the channel and gain setting noted. Offset does not change.

Summary: No secondary peaks were observed.

TEST DESCRIPTION The 0.050" pin hole target was installed on the radiometric fixture, then scanned twice for each diode, at different gain settings. Offset = 1 (for all frames). Target to camera distance was 2.62 meters.

DATA PROCESSING DESCRIPTION 30x15 pixel listings of the pin hole target area were generated for each frame.

ANALYST Michael E Morrill

APPROVAL Michael R. Wolf

221355 3 LIST
INPUT NL= 135 NS= 512
VIKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10 HIGH DATA RATE C
BROADBAND MODE 881 DIODE OFFSET 1 GAIN 5 C
FRAME COUNT 1 ** *** 1974 PSA TEMP 26 DEG C (44) C
DARK CURRENT SUBTRACTOR ON L

VIKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON 881 OFFSET 1 GAIN 5 L

LINE \ SAMP	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
77	0	0	0	0	0	1	6	14	7	0	0	0	0	0	0
78	0	0	0	0	0	2	19	$\boxed{41}$	23	2	0	0	0	0	0
79	0	0	0	0	0	1	12	25	12	1	0	0	0	0	0
80	0	0	0	0	0	0	1	2	1	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VIKING LANDER *   CAMERA *   FC1B   GMT TIME **C**C**
DARK CURRENT SUBTRACTOR ON   8B1 OFFSET 1 GAIN3   C
L

LINE \ SAMP	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265
65	3	4	4	3	3	4	3	3	4	3	4	4	3	4	4
66	4	4	3	3	3	3	3	4	4	3	4	4	3	3	3
67	3	4	4	3	3	4	3	3	3	3	3	4	3	3	4
68	3	4	3	3	4	4	4	3	3	3	3	4	4	3	3
69	4	4	4	3	4	4	3	3	3	3	3	3	4	4	3
70	4	4	3	3	3	4	3	4	3	3	4	4	4	3	3
71	3	3	3	3	3	4	3	4	3	3	3	3	4	3	4
72	4	4	3	3	3	3	4	3	3	3	4	4	4	3	3
73	4	4	4	3	3	4	3	4	3	3	3	4	3	3	3
74	4	4	3	3	4	4	4	3	3	4	3	4	3	3	3
75	4	4	3	3	4	4	4	4	3	3	3	4	4	3	4
76	3	4	3	3	4	5	6	6	4	4	3	4	4	4	3
77	3	4	3	3	4	7	26	57	30	5	3	4	4	3	3
78	4	4	4	3	5	11	62	62	62	11	3	3	3	3	3
79	4	4	3	3	5	8	48	62	51	6	3	3	4	3	3
80	4	4	4	3	4	4	6	5	4	4	4	4	4	3	4
81	3	4	3	3	4	4	4	4	4	3	4	4	4	3	3
82	4	4	3	3	3	4	4	4	4	3	3	3	3	3	3
83	4	3	3	3	3	3	4	4	4	3	3	4	3	3	3
84	3	4	3	3	4	4	4	3	3	3	3	4	3	3	3
85	4	4	3	3	3	4	3	3	3	3	3	4	4	3	3
86	3	3	3	3	3	4	4	4	3	3	3	4	3	3	3
87	3	4	3	3	4	4	3	3	3	3	3	3	4	4	3
88	4	4	4	3	4	3	3	4	3	3	3	3	3	4	3
89	3	4	3	3	4	4	4	4	3	3	3	3	4	4	4
90	3	4	4	4	4	4	3	4	4	3	4	3	3	3	2
91	3	3	4	3	3	4	3	4	3	3	3	3	3	3	3
92	4	3	3	3	4	4	3	3	3	3	4	3	3	3	3
93	3	4	3	3	3	4	4	4	3	3	3	4	4	3	3
94	4	3	3	3	4	4	3	3	3	3	3	4	4	3	3

316

VIKING LANDER * CAMERA * FC18 CMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON 8B2 OFFSET 1 GAIN 5 L

LINE \ SAMP	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0
77	0	0	0	0	0	2	37	$\boxed{44}$	6	0	0	0	0	0	0
78	0	0	0	0	0	1	32	37	3	0	0	0	0	0	0
79	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

MCA

VIKING LANDER * CAMERA * FC1B GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON BB2 OFFSET 1 GAIN3 L

SAMP	251		253		255		257		259		261		263		265
LINE															
65	3	4	4	4	3	4	4	4	3	4	4	4	4	4	3
66	4	3	4	3	3	3	3	3	3	4	3	3	4	3	3
67	3	4	4	4	4	4	4	4	4	3	3	4	3	3	3
68	4	4	3	3	3	4	4	3	3	4	4	4	4	4	3
69	4	3	3	3	4	4	3	4	3	3	3	4	4	3	3
70	3	4	4	3	4	4	4	4	3	3	4	3	4	3	3
71	4	4	3	4	4	4	4	3	3	3	3	4	4	3	3
72	3	4	4	3	3	4	4	3	3	3	4	3	3	4	4
73	4	4	4	3	4	4	4	4	4	3	4	4	3	4	3
74	3	3	3	3	4	4	4	4	3	4	3	4	3	3	3
75	3	4	4	3	4	5	5	4	4	3	4	4	4	3	3
76	4	3	4	4	4	6	11	15	4	4	4	4	3	4	3
77	4	4	3	3	4	10	62	62	20	3	4	3	3	4	3
78	3	4	4	4	4	7	62	62	15	3	3	3	4	3	3
79	4	3	3	4	4	5	6	6	4	4	4	5	4	4	3
80	4	3	4	3	4	4	4	4	3	3	3	4	4	3	3
81	3	3	3	3	3	4	4	4	3	4	4	4	4	3	4
82	4	4	3	4	4	4	4	4	4	3	3	4	4	3	3
83	3	4	4	3	3	3	4	3	4	3	4	3	4	3	3
84	4	3	4	3	4	4	4	4	3	3	4	4	3	3	4
85	4	3	4	3	3	3	3	4	3	3	4	4	3	4	4
86	3	4	3	3	4	3	4	3	4	3	4	4	3	4	3
87	3	3	3	3	4	3	3	4	3	3	4	4	3	3	3
88	4	3	3	3	3	4	3	4	3	4	4	4	4	3	3
89	4	4	3	3	4	4	3	3	3	3	4	4	4	3	4
90	3	4	4	3	4	4	3	4	3	3	3	4	4	4	4
91	3	3	4	3	4	4	3	3	3	3	4	4	4	3	3
92	4	4	3	3	3	4	3	3	3	3	3	3	3	4	3
93	4	3	4	3	3	3	3	3	3	3	4	4	4	3	3
94	3	3	3	3	3	4	3	3	3	3	3	4	3	3	3

VIKING LANDER * CAMERA * FC18 GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON BB3 OFFSET 1 GAIN5 L

LINE \ SAMP	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	1	2	3	1	0	0	0	0	0	0	0	0
77	0	0	0	3	14	18	5	0	0	0	0	0	0	0	0
78	0	0	0	5	26	$\boxed{35}$	12	1	0	0	0	0	0	0	0
79	0	0	0	3	16	15	5	0	0	0	0	0	0	0	0
80	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

319

VIKING LANDER *   CAMERA *   FC1B   GMT TIME **0**0**   C
DARK CURRENT SUBTRACTOR ON   L

... SS= 256   NL= 30   NS= 15

VIKING LANDER *   CAMERA *   FC1B   GMT TIME **0**0**
DARK CURRENT SUBTRACTOR ON   BB3 OFFSET 1 GAIN 3   C
L

SAMP / LINE	256		258		260		262		264		266		268		270
65	4	3	4	4	3	4	4	3	3	3	3	4	4	4	4
66	3	3	3	3	3	3	3	3	3	3	4	4	4	4	3
67	4	3	3	3	3	3	3	3	3	3	4	3	3	4	4
68	4	3	3	3	3	4	3	3	3	3	3	3	4	4	4
69	4	4	4	3	3	3	4	3	3	2	3	4	4	4	3
70	4	4	4	3	3	4	4	4	3	3	3	4	4	4	4
71	4	4	4	3	4	3	4	3	4	3	4	4	4	4	3
72	3	3	4	3	3	3	3	3	3	3	4	3	4	4	4
73	4	4	3	3	3	3	3	4	4	3	3	3	3	3	3
74	4	4	4	3	3	3	4	4	3	3	3	3	3	4	4
75	4	4	3	4	4	4	4	4	4	3	3	3	4	4	3
76	4	4	4	6	10	11	5	4	4	3	3	4	4	3	4
77	4	4	4	14	59	62	21	4	4	3	3	3	4	4	3
78	4	4	4	23	62	62	44	5	3	3	4	3	3	4	3
79	4	4	5	14	62	62	20	4	3	3	4	3	4	3	3
80	4	4	4	5	10	11	5	4	3	4	3	3	3	4	3
81	4	4	4	3	3	4	4	4	4	4	3	3	4	4	3
82	4	3	4	3	3	3	4	4	3	4	3	4	4	4	3
83	3	3	4	3	3	4	4	3	3	3	4	4	4	4	3
84	4	4	4	4	3	3	3	3	3	3	3	4	3	4	3
85	4	3	4	3	3	3	4	4	3	3	4	3	4	4	3
86	4	4	4	3	3	3	4	3	3	3	3	3	4	4	3
87	3	3	3	3	3	4	4	4	3	2	4	3	3	4	3
88	4	3	3	3	3	3	3	3	3	3	3	3	3	3	2
89	4	4	4	4	3	5	3	4	3	3	3	3	4	4	3
90	4	3	3	4	3	3	3	3	3	4	3	3	4	3	3
91	4	3	4	3	3	3	3	3	3	3	3	3	4	3	3
92	4	3	3	3	3	5	3	3	3	3	3	3	3	5	4
93	4	3	4	3	3	4	3	3	3	3	3	3	3	3	3
94	4	3	3	2	3	3	3	3	3	3	3	4	4	3	2

VIKING LANDER * CAMERA * FC18 GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON BB 4 OFFSET 1 GAIN 5 L

SAMP	256		258		260		262		264		266		268		270
LINE															
65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	2	4	4	2	0	0	0	0	0	0	0
76	0	0	0	2	6	9	10	6	1	0	0	0	0	0	0
77	0	0	0	3	8	12	$\boxed{13}$	9	2	0	0	0	0	0	0
78	0	0	0	2	8	12	$\boxed{13}$	9	2	0	0	0	0	0	0
79	0	0	0	1	4	8	9	5	1	0	0	0	0	0	0
80	0	0	0	0	1	2	3	1	0	0	0	0	0	0	0
81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VIKING LANDER *   CAMERA *   FC1B   GMT TIME **C**C**   C

VIKING LANDER *   CAMERA *   FC1B   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   6B4 OFFSET 1 GAIN 3   L

LINE \ SAMP	256		258		260		262		264		266		268		270
65	4	3	3	4	3	4	3	4	4	3	3	3	3	4	4
66	4	4	4	4	3	4	4	4	4	3	4	4	4	3	3
67	4	4	4	3	3	4	4	4	4	4	3	3	4	4	3
68	4	4	4	3	4	4	4	4	3	4	3	4	4	4	4
69	4	5	3	3	4	3	4	4	4	3	3	3	3	4	3
70	4	3	4	3	3	3	3	3	3	3	3	4	3	4	4
71	4	4	4	3	3	3	4	3	3	3	4	3	3	4	4
72	4	4	3	4	4	3	4	4	3	4	4	4	4	3	3
73	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
74	4	3	4	4	4	5	4	4	4	4	4	3	4	4	3
75	4	4	4	5	9	16	16	8	4	3	4	4	4	4	3
76	4	3	5	9	29	40	39	22	6	4	4	4	4	4	4
77	4	4	5	12	34	49	52	38	12	4	4	4	4	4	3
78	4	4	5	11	33	50	$\boxed{53}$	36	11	4	4	4	4	4	3
79	4	4	4	7	21	39	38	20	6	3	4	3	4	4	4
80	4	4	4	3	6	11	11	6	3	3	3	3	4	4	3
81	4	4	3	4	3	4	4	4	4	3	4	4	4	4	3
82	3	4	4	4	3	4	4	3	3	3	3	3	3	4	4
83	4	4	4	4	4	4	4	4	4	3	3	3	5	4	4
84	4	3	4	3	3	3	3	4	3	4	4	3	3	4	4
85	3	4	4	3	3	4	4	3	4	3	3	3	4	4	3
86	4	3	4	4	3	3	3	3	3	3	4	3	4	4	3
87	4	4	4	3	4	4	4	4	3	3	3	3	3	4	3
88	4	4	4	4	3	3	3	4	3	3	4	4	4	4	4
89	4	4	4	3	3	3	4	4	3	4	4	3	4	4	3
90	4	3	3	4	3	3	4	4	3	3	3	4	3	4	4
91	4	4	4	4	3	3	4	4	3	3	3	3	4	4	4
92	4	4	4	4	3	4	3	3	4	3	4	3	3	3	3
93	4	4	4	3	3	3	4	3	3	3	3	3	4	5	3
94	4	3	4	3	3	3	3	4	3	3	4	4	4	4	4

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VIKING LANDER * CAMERA * FC1B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON BLUE OFFSET 1 GAIN 3 L

LINE \ SAMP	250		252		254		256		258		260		262		264
13	5	4	4	3	4	4	5	3	4	3	4	5	6	3	4
14	4	5	5	3	4	4	5	4	3	5	4	4	3	3	4
15	5	3	4	5	2	4	4	3	5	3	2	5	4	4	4
16	4	4	4	3	2	4	4	4	3	3	4	3	4	4	5
17	3	3	3	4	4	3	5	4	4	2	2	4	4	4	3
18	3	4	4	3	4	4	5	4	5	2	4	4	4	2	3
19	4	4	4	3	3	3	3	4	4	3	3	2	4	4	3
20	4	3	4	3	4	4	3	4	2	5	3	3	3	5	4
21	5	4	4	4	4	3	3	4	4	4	4	5	3	4	4
22	4	5	4	3	4	2	3	5	4	5	5	5	3	4	5
23	4	5	4	3	3	4	4	4	3	4	3	4	3	5	5
24	3	3	5	4	5	5	4	4	3	2	5	4	5	4	4
25	3	5	4	4	4	4	4	2	4	5	4	3	4	4	2
26	4	4	4	3	4	4	4	5	4	2	4	5	3	2	5
27	3	5	4	2	3	4	5	16	$\boxed{30}$	5	3	3	3	3	0
28	4	4	2	2	4	5	6	5	[illegible]	4	4	5	3	4	4
29	5	4	3	5	3	4	4	4	4	4	4	3	4	4	3
30	4	4	4	4	5	4	5	5	3	4	4	3	4	4	5
31	3	5	3	3	2	5	3	4	4	4	5	3	5	4	5
32	4	3	4	6	4	4	3	3	5	3	3	3	3	4	3
33	4	3	5	5	4	2	3	5	5	4	5	3	4	3	3
34	4	4	3	5	3	4	3	4	5	4	4	4	4	4	5
35	5	3	2	4	3	4	4	4	4	3	4	3	4	4	4
36	4	4	4	4	4	3	5	3	5	3	4	3	4	5	4
37	4	4	4	4	4	3	6	5	5	4	4	4	2	4	3
38	3	3	3	2	3	4	3	3	4	4	3	5	4	4	5
39	4	4	6	3	4	5	3	4	2	5	2	4	4	4	3
40	5	2	3	3	3	5	5	5	3	4	3	3	4	4	3
41	3	5	4	3	3	3	5	5	3	3	3	3	4	3	6
42	3	4	5	2	3	4	4	4	5	4	3	4	4	3	4

VIKING LANDER *   CAMERA *   FC18   GMT TIME **0**0**
DARK CURRENT SUBTRACTOR ON   BLUE OFFSET 1 GAIN 1   C L

LINE \ SAMP	250		252		254		256		258		260		262		264
13	17	24	17	7	13	16	14	11	17	13	7	18	17	16	16
14	15	12	13	12	16	14	13	17	15	12	12	18	7	14	8
15	16	7	11	12	19	11	14	9	9	13	13	16	9	13	7
16	16	15	12	13	16	13	14	15	17	16	10	15	16	15	16
17	15	9	13	18	12	15	15	16	16	18	21	7	9	13	12
18	18	18	11	12	12	16	14	14	14	18	20	10	11	12	18
19	11	12	11	16	17	17	11	9	16	13	4	11	13	12	12
20	10	10	16	11	13	12	15	6	14	12	19	10	12	19	18
21	20	13	15	15	16	14	16	11	15	16	17	21	10	11	13
22	10	6	8	11	14	11	16	14	16	6	18	14	15	15	17
23	13	17	9	19	20	13	8	14	21	16	17	11	17	11	7
24	19	12	11	13	18	13	20	19	11	6	10	12	10	11	19
25	15	13	13	13	14	14	15	16	17	14	17	11	6	14	17
26	14	18	19	10	14	12	13	17	18	19	16	13	18	15	16
27	14	8	15	15	15	20	16	$\boxed{62}$	$\boxed{62}$	21	9	13	13	16	14
28	14	11	10	12	15	8	14	22	26	9	14	16	15	17	15
29	11	13	14	18	12	9	15	10	16	11	17	13	15	14	12
30	15	13	12	13	16	13	12	15	16	16	11	15	13	19	12
31	15	19	14	17	19	16	18	14	15	16	14	12	15	20	14
32	22	10	17	13	17	13	16	22	16	10	16	12	14	16	12
33	21	14	17	10	14	12	13	15	20	10	16	11	14	13	18
34	15	18	7	12	16	11	12	17	15	16	15	13	15	13	15
35	16	10	17	13	13	16	16	17	19	15	10	9	12	12	12
36	14	15	10	10	12	20	16	12	12	15	13	16	15	13	15
37	15	11	22	10	10	8	11	14	16	18	13	13	18	20	19
38	24	19	13	19	12	12	9	11	18	12	11	12	15	16	12
39	21	11	15	17	11	15	17	14	15	14	17	13	13	13	11
40	19	11	8	8	14	17	16	17	17	6	15	20	17	11	15
41	12	16	14	11	19	16	19	17	12	11	13	12	15	17	18
42	18	12	15	18	11	16	11	17	9	17	16	14	14	21	15

VIKING LANDER * CAMERA * FC1B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON GREEN OFFSET 1 GAIN 3 L

LINE / SAMP	250		252		254		256		258		260		262		264
13	3	3	4	3	3	3	4	4	3	3	3	4	4	3	3
14	4	4	3	3	4	3	4	3	3	3	3	4	3	3	3
15	4	4	4	4	3	3	4	3	3	3	3	3	4	3	3
16	4	4	3	3	3	3	4	3	3	3	2	3	3	3	3
17	4	3	4	3	3	3	4	3	3	3	3	3	3	3	2
18	4	4	3	3	3	3	4	4	3	3	3	4	4	3	3
19	4	3	4	2	4	3	4	4	4	3	3	3	4	3	3
20	4	3	3	3	3	3	3	3	2	3	2	3	4	3	3
21	3	3	3	3	3	4	4	3	4	3	3	4	4	4	3
22	4	4	3	3	3	4	4	3	3	3	3	4	4	3	3
23	4	4	4	2	2	3	3	3	3	3	3	3	3	4	4
24	4	3	3	3	2	4	4	3	3	3	3	3	3	3	3
25	4	4	3	3	3	3	3	4	3	3	3	4	3	4	3
26	4	4	4	3	3	4	4	4	3	3	2	4	3	3	3
27	4	4	4	3	3	3	4	26	$\boxed{46}$	3	3	4	3	3	2
28	4	3	4	3	3	4	4	6	[illegible]	3	3	4	4	3	4
29	4	3	3	3	3	3	4	3	3	3	3	4	4	4	3
30	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3
31	4	3	4	3	3	3	4	3	3	3	3	4	3	3	3
32	4	4	4	3	3	4	4	3	3	3	3	4	4	4	3
33	4	3	3	3	3	3	4	3	2	3	3	3	4	3	3
34	3	3	2	3	3	3	4	3	4	3	2	3	3	3	3
35	4	3	3	3	4	3	4	3	3	3	2	4	3	3	3
36	4	4	4	3	2	3	3	3	3	2	3	3	3	4	3
37	4	4	3	3	3	3	4	3	3	3	3	4	3	3	3
38	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3
39	4	3	3	3	3	3	3	3	2	3	3	3	4	3	3
40	4	3	3	3	3	3	4	4	4	3	3	3	4	3	3
41	4	3	4	2	3	3	4	3	4	2	3	3	4	4	3
42	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3

// ACCESS SA.3316.1SSSO3

VIKING LANDER * CAMERA * FC1B GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON GREEN OFFSET 1 GAIN 1 L

SAMP / LINE	250		252		254		256		258		260		262		264
13	14	18	14	14	13	18	16	17	15	16	19	15	15	16	19
14	16	14	14	17	16	12	15	18	15	15	13	14	16	16	15
15	16	15	14	18	17	13	17	15	16	15	15	11	16	14	17
16	15	15	17	11	18	12	17	17	15	16	17	14	11	16	15
17	18	17	17	14	10	15	17	14	15	14	15	14	15	17	19
18	17	16	14	16	11	14	16	18	16	14	17	14	15	18	19
19	16	14	15	14	13	13	17	18	16	17	17	15	13	16	14
20	15	17	16	16	12	14	15	15	18	17	15	14	17	17	19
21	16	15	15	14	16	13	16	14	16	13	16	12	15	17	17
22	16	18	14	16	13	16	15	17	18	14	12	16	16	16	16
23	15	15	17	16	17	15	16	18	15	16	15	15	17	15	16
24	17	15	17	18	10	14	15	14	16	14	17	15	16	15	16
25	15	16	12	14	13	15	17	14	18	13	14	14	16	15	18
26	14	15	17	14	11	14	17	18	18	16	17	15	14	16	13
27	20	19	14	18	14	16	15	$\boxed{62}$	$\boxed{62}$	15	18	12	15	16	13
28	16	17	15	15	11	16	15	28	30	18	10	17	15	18	12
29	17	14	16	18	12	16	14	16	19	14	12	14	15	15	14
30	16	17	14	13	16	12	15	16	17	12	15	12	15	15	16
31	16	14	13	15	16	12	15	17	16	15	13	15	15	15	15
32	16	15	18	12	17	13	16	14	18	14	17	12	15	17	15
33	12	16	13	14	16	13	15	14	18	14	18	16	17	16	15
34	17	14	15	14	11	15	15	15	16	16	16	16	14	15	18
35	13	15	15	12	16	15	16	12	18	15	13	14	17	17	15
36	15	16	16	15	15	13	14	16	16	17	17	16	14	14	18
37	17	16	13	15	18	14	15	12	17	13	11	17	19	17	15
38	17	13	16	15	14	15	14	15	16	15	17	15	17	21	19
39	16	15	16	16	12	14	15	13	16	13	11	13	17	17	16
40	16	18	14	18	10	13	17	16	16	16	17	14	17	16	17
41	16	14	16	12	15	14	14	14	18	16	15	13	14	17	16
42	16	16	12	18	18	12	16	16	14	15	16	14	16	14	18

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VIKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON RED OFFSET 1 GAIN 3 L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264
13	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
14	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
15	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
16	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
17	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
19	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
23	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
24	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
27	4	4	4	4	4	4	4	27	$\boxed{45}$	4	4	4	4	4	4
28	4	4	4	4	4	4	4	6	10	4	4	4	4	4	4
29	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
30	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
31	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
32	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
33	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
34	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
35	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
36	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
37	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
38	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4
39	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
40	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
41	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
42	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4

VIKING LANDER * CAMERA * FC1B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON RED OFFSET 1 GAIN1 L

SAMP	250		252		254		256		258		260		262		264
LINE															
13	15	16	15	15	16	14	15	15	16	14	16	14	14	15	15
14	16	15	14	14	15	13	15	15	16	16	15	14	15	15	15
15	15	15	15	15	16	13	15	15	15	14	14	15	14	15	16
16	16	16	14	14	14	15	16	16	15	14	15	13	15	17	16
17	15	15	15	14	16	13	15	16	15	14	16	15	14	15	15
18	15	15	15	16	13	14	15	15	16	14	16	14	16	15	17
19	15	15	14	14	15	14	15	15	16	15	16	15	14	15	16
20	15	16	14	15	14	15	15	15	17	14	13	16	14	15	15
21	15	14	15	15	14	14	15	15	15	13	15	15	15	16	16
22	15	15	14	15	14	14	15	16	15	14	14	14	14	15	15
23	16	15	14	14	14	15	15	15	15	14	16	14	15	15	16
24	15	15	15	14	15	14	15	15	15	14	15	15	15	15	15
25	15	15	14	14	14	13	15	16	15	14	14	15	15	16	15
26	15	15	15	14	14	13	15	16	16	14	16	14	14	15	16
27	15	15	14	15	13	14	16	62	62	16	13	15	15	15	15
28	15	15	15	15	14	14	16	23	42	17	15	14	15	15	15
29	15	15	14	15	15	13	14	15	16	16	14	15	15	15	14
30	15	16	15	15	15	14	15	15	16	14	16	14	15	15	16
31	15	16	14	14	14	15	14	15	15	14	14	14	14	15	15
32	14	15	14	14	14	14	15	16	16	14	14	14	15	15	15
33	15	15	15	14	13	15	15	15	15	15	14	14	15	16	15
34	15	15	14	14	14	13	14	15	14	14	14	15	14	16	14
35	15	16	14	15	12	15	15	14	16	15	13	14	15	15	14
36	15	15	15	15	14	14	15	15	16	14	13	14	14	16	15
37	15	16	15	14	16	13	15	15	15	15	14	14	15	17	14
38	15	16	15	14	16	13	14	15	16	13	14	15	15	15	15
39	15	16	15	14	13	15	14	14	14	14	15	14	15	15	14
40	15	15	14	14	14	13	15	15	16	14	13	14	15	14	15
41	15	15	15	15	14	14	15	15	14	15	15	14	15	16	17
42	15	15	14	14	14	14	15	15	16	14	14	14	14	16	15

IKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
ARK CURRENT SUBTRACTOR ON IR1 OFFSET 1 GAIN3 L

SAMP	250		252		254		256		258		260		262		264
LINE															
13	4	4	4	3	3	4	4	4	3	4	3	3	4	4	3
14	3	4	3	3	3	3	3	3	4	4	3	3	4	4	3
15	4	4	3	4	3	3	4	4	4	4	3	4	3	3	3
16	4	4	4	3	3	3	4	3	4	3	3	4	3	4	3
17	4	3	3	3	3	4	4	4	4	3	3	3	3	4	3
18	4	4	4	3	3	3	4	4	4	4	3	3	3	3	3
19	4	4	3	4	3	3	4	3	3	3	3	4	4	3	3
20	4	3	4	3	3	3	4	3	4	3	3	3	3	4	4
21	4	4	4	3	3	4	4	3	4	3	3	4	3	3	3
22	4	3	3	3	3	4	4	3	4	3	3	4	3	4	4
23	4	4	4	3	4	3	4	3	4	3	3	4	3	4	3
24	4	3	4	3	3	3	4	4	3	3	3	3	3	4	4
25	4	4	4	3	3	4	4	3	4	4	3	3	4	4	3
26	4	4	4	3	3	3	4	4	4	4	3	3	3	3	4
27	4	3	4	3	3	3	4	23	$\boxed{38}$	4	3	3	4	3	3
28	4	4	4	3	3	4	4	7	8	4	3	4	4	4	3
29	4	3	3	3	3	3	4	4	4	3	3	3	3	4	3
30	4	3	5	3	3	3	4	4	4	3	3	3	3	4	3
31	4	3	3	3	3	3	4	3	3	3	3	4	4	4	3
32	4	3	4	4	3	3	3	3	4	4	3	3	3	4	3
33	4	4	4	3	4	4	4	3	4	3	3	3	4	3	3
34	4	3	4	4	4	4	3	3	3	3	3	4	3	4	3
35	4	3	4	3	3	4	3	4	3	4	3	3	4	4	4
36	4	4	3	3	3	3	4	4	4	3	3	4	3	4	3
37	4	3	3	3	3	3	4	3	3	3	3	4	3	4	3
38	4	4	3	4	3	3	4	3	4	3	3	3	4	4	3
39	4	4	4	3	3	3	4	3	4	3	3	3	4	4	4
40	4	4	3	3	3	3	4	3	4	3	3	3	4	4	3
41	4	3	4	4	3	3	4	3	3	3	3	3	3	4	3
42	4	4	4	3	3	3	4	4	3	4	3	3	3	3	3

VIKING LANDER * CAMERA * FC1B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON IR1 OFFSET 1 GAIN 1 L

SAMP / LINE	250		252		254		256		258		260		262		264
13	15	15	15	14	15	14	16	16	15	13	13	14	15	16	16
14	14	14	13	15	12	14	15	16	14	17	15	14	14	15	14
15	15	16	13	15	14	13	15	14	14	15	12	16	12	14	15
16	15	16	14	13	13	14	15	15	15	14	13	14	14	14	16
17	15	16	16	13	13	14	15	16	17	14	13	14	14	14	14
18	15	15	13	13	13	12	15	16	16	14	13	17	14	13	14
19	15	15	14	12	13	13	16	16	14	13	13	14	15	15	15
20	15	15	13	14	13	14	14	15	14	12	17	15	15	15	16
21	14	15	15	13	12	15	15	16	15	15	13	14	14	15	16
22	15	17	14	13	16	13	14	14	15	14	12	16	15	16	15
23	15	15	16	13	18	13	15	14	14	16	16	13	16	15	17
24	15	15	14	14	13	13	14	14	16	16	14	14	15	15	15
25	14	16	14	14	15	12	15	15	14	13	14	14	15	16	15
26	15	16	15	15	12	12	14	15	15	15	13	14	14	15	16
27	15	14	14	14	12	14	17	62	62	15	17	13	14	15	14
28	14	15	13	13	15	14	15	28	35	16	12	14	14	15	15
29	14	16	14	16	11	12	16	16	14	13	15	14	14	15	14
30	14	14	15	14	12	12	15	15	15	13	13	12	14	14	13
31	17	14	16	14	13	13	14	15	16	12	12	13	15	16	16
32	14	16	15	14	13	13	16	14	14	15	12	14	15	16	16
33	14	15	15	15	13	16	14	14	13	14	15	15	13	17	15
34	14	14	14	13	16	13	13	14	15	14	12	14	15	16	15
35	14	14	16	13	13	13	14	15	16	12	12	15	13	15	14
36	16	15	13	15	16	13	16	14	14	15	13	13	14	16	13
37	14	14	16	13	15	14	14	15	16	13	13	13	15	14	14
38	14	15	16	14	13	13	15	15	13	13	13	15	15	16	16
39	15	14	15	14	13	15	15	15	14	12	15	13	15	14	13
40	15	15	15	14	12	14	15	15	15	14	13	14	13	14	14
41	14	15	14	15	12	14	14	14	15	13	12	13	15	14	16
42	14	15	13	15	15	12	15	16	15	14	12	14	13	14	15

VIKING LANDER *   CAMERA *   FC18   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   IR2 OFFSET 1 GAIN 3   L

SAMP / LINE	250		252		254		256		258		260		262		264
13	4	4	4	3	3	4	4	4	4	3	3	4	3	4	3
14	4	4	4	4	3	4	4	4	4	4	3	3	3	4	3
15	4	3	5	3	3	3	3	3	4	3	3	4	4	4	3
16	4	4	4	3	3	4	4	3	4	3	3	3	3	4	4
17	4	3	4	3	3	4	4	3	4	4	3	3	3	4	3
18	4	4	4	3	3	4	4	4	4	4	3	3	3	4	4
19	4	4	3	3	3	3	4	3	4	3	3	3	4	4	3
20	3	4	3	3	3	3	4	4	4	4	3	4	3	4	4
21	4	4	3	3	3	4	4	4	4	3	2	3	4	5	3
22	4	3	4	3	3	3	4	4	3	3	3	4	4	3	4
23	4	4	4	4	3	4	4	4	4	4	4	3	4	4	3
24	4	4	4	3	3	3	4	4	3	3	3	3	4	4	3
25	4	4	3	2	3	3	4	4	4	3	3	3	4	4	3
26	4	4	4	3	4	4	4	4	4	3	3	3	4	3	2
27	3	4	3	3	3	4	5	23	$\boxed{34}$	4	3	3	4	3	3
28	4	3	3	3	4	4	4	7	8	3	3	4	3	3	3
29	3	4	4	3	4	4	4	3	4	3	3	3	3	4	3
30	4	3	3	3	3	3	3	3	3	3	2	4	3	3	4
31	4	4	3	4	3	4	4	3	3	4	3	3	4	3	3
32	4	4	3	3	3	4	4	3	3	3	3	3	4	4	3
33	4	4	4	3	2	4	4	3	4	4	3	3	3	4	3
34	4	4	4	3	3	4	4	3	4	3	3	3	3	4	4
35	4	3	4	3	3	3	4	4	3	4	3	3	4	4	4
36	5	4	2	3	3	3	4	3	4	4	3	3	3	3	3
37	4	4	4	3	3	4	4	3	4	3	3	3	3	3	4
38	4	4	3	3	3	4	4	4	4	3	3	4	4	4	3
39	4	3	4	3	3	3	4	4	4	3	3	4	3	4	4
40	4	4	3	3	3	3	4	4	3	3	3	3	4	3	3
41	4	4	4	3	3	4	4	3	3	4	3	3	3	3	3
42	4	4	4	3	3	4	4	3	4	3	3	3	4	4	3

VIKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON IR2 OFFSET 1 GAIN 1 L

SAMP	250		252		254		256		258		260		262		264
LINE															
13	16	15	14	15	13	17	14	16	16	15	17	16	13	15	20
14	13	16	14	12	11	17	13	14	16	12	17	12	15	14	15
15	17	15	14	13	19	15	15	18	17	10	12	16	15	14	20
16	16	17	14	15	17	17	13	14	16	15	17	11	15	16	15
17	16	16	14	17	14	13	16	15	15	16	16	14	15	16	19
18	15	16	16	17	16	15	18	15	15	18	18	15	12	15	17
19	17	17	13	16	15	14	15	15	16	13	11	17	14	15	17
20	14	13	14	14	13	15	19	18	16	12	11	16	11	15	15
21	16	16	15	14	17	13	16	16	15	11	17	16	15	16	13
22	17	16	14	16	15	15	17	14	13	16	16	13	16	17	16
23	15	16	17	15	13	13	16	14	16	18	16	15	13	14	13
24	15	16	16	17	15	12	12	13	16	14	15	16	14	16	17
25	16	16	13	18	12	14	16	14	15	14	11	15	15	14	15
26	16	14	15	18	15	11	17	18	16	14	16	13	16	15	17
27	17	14	15	14	16	15	18	62	62	16	14	15	16	18	16
28	15	15	14	15	13	15	18	25	35	14	17	17	15	15	13
29	13	17	15	17	15	14	14	16	14	13	12	13	14	15	18
30	15	15	14	15	11	19	13	16	15	12	17	18	12	12	13
31	17	18	17	14	17	12	19	14	17	12	19	14	13	16	13
32	18	15	13	13	14	13	19	15	17	16	11	19	15	16	15
33	13	13	14	15	15	13	16	16	14	15	16	15	13	15	12
34	16	16	15	16	17	10	14	17	16	17	17	17	11	16	15
35	16	14	14	14	17	14	17	17	16	13	17	14	13	14	15
36	18	18	14	17	13	16	15	16	17	13	17	13	15	16	17
37	16	15	17	17	11	12	19	18	13	15	17	16	13	18	17
38	16	16	13	14	14	15	17	17	15	14	11	18	15	15	12
39	18	13	16	16	13	12	15	15	14	16	16	15	11	13	12
40	16	16	14	12	12	14	15	15	17	12	13	17	14	14	17
41	16	16	13	16	11	15	14	13	16	15	14	17	11	15	16
42	17	14	13	14	12	16	14	17	16	19	13	13	17	18	20

VIKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON IR3 OFFSET 1 GAIN3 L

SAMP	250		252		254		256		258		260		262		264
LINE															
13	4	4	4	3	3	4	4	3	4	4	3	3	3	4	3
14	4	4	4	4	3	3	4	3	4	3	4	4	3	4	4
15	3	4	4	3	4	4	4	4	4	4	3	3	4	4	4
16	4	3	3	3	3	3	3	3	4	3	3	4	3	4	3
17	4	3	3	3	3	3	4	3	4	3	3	3	4	3	4
18	3	4	4	3	4	4	4	4	4	3	3	4	3	4	3
19	4	3	4	3	4	3	4	3	4	3	3	3	4	3	3
20	3	4	4	3	3	4	4	4	4	4	3	3	4	4	3
21	3	4	4	3	3	4	4	3	3	3	3	3	3	4	4
22	4	4	3	3	3	4	4	3	4	4	4	3	4	4	3
23	4	4	4	4	3	4	3	4	4	3	4	4	3	3	4
24	4	3	4	3	3	4	3	4	4	3	4	4	4	4	4
25	4	3	4	3	3	4	3	4	3	3	3	3	4	4	4
26	3	4	3	3	3	4	3	4	4	4	3	3	3	4	3
27	4	4	4	4	4	4	4	16	$\boxed{33}$	4	4	3	4	3	3
28	3	4	3	3	4	4	4	6	13	4	3	3	4	3	4
29	4	4	4	3	3	3	4	4	4	3	3	4	3	4	3
30	4	4	3	3	3	3	4	3	3	3	4	3	4	4	3
31	4	3	3	4	3	3	3	4	4	3	3	4	3	3	4
32	3	4	3	3	3	3	4	3	3	3	3	4	4	4	3
33	4	4	4	3	3	4	4	4	4	3	3	4	3	4	4
34	3	3	3	3	3	4	4	3	3	4	4	3	4	4	3
35	4	3	4	3	3	4	4	3	4	3	3	4	4	3	3
36	4	4	4	3	3	3	4	3	4	3	3	3	3	3	3
37	3	3	3	3	4	3	3	3	3	4	3	3	3	3	3
38	3	3	4	3	3	3	4	3	3	4	3	3	3	4	3
39	4	3	4	3	3	3	3	3	4	3	3	3	4	4	3
40	4	3	3	3	3	4	4	4	3	4	3	3	4	3	3
41	4	4	3	3	3	3	3	3	3	3	3	4	3	4	4
42	3	3	3	3	3	3	4	3	3	3	3	3	3	4	4

VIKING LANDER * CAMERA * FC1B GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON IR3 OFFSET1 GAIN1 L

SAMP	250		252		254		256		258		260		262		264
LINE															
13	14	15	15	14	13	15	15	15	16	15	17	15	16	14	16
14	16	14	16	15	12	16	17	16	16	13	14	16	16	16	16
15	15	14	13	14	14	14	16	15	16	14	14	16	14	14	15
16	14	15	16	14	16	15	15	15	15	16	16	15	13	15	16
17	16	15	15	15	13	14	16	16	16	15	14	16	16	16	15
18	14	16	17	15	14	15	16	15	16	16	12	17	14	16	16
19	17	15	15	14	14	15	14	15	15	14	15	15	15	16	14
20	16	17	17	16	14	15	16	15	18	14	12	17	14	16	16
21	16	15	15	15	16	14	15	14	16	16	13	15	16	17	16
22	16	16	15	15	16	14	16	17	15	15	15	15	16	14	16
23	14	16	15	17	12	15	16	15	16	16	16	17	14	16	17
24	15	14	16	15	16	15	15	17	16	13	15	15	15	14	18
25	15	16	15	16	12	15	16	15	17	15	14	15	13	16	16
26	16	15	15	15	13	14	14	17	15	16	13	15	15	15	18
27	15	14	15	13	12	16	18	$\boxed{62}$	$\boxed{62}$	18	16	14	14	15	15
28	15	16	13	15	14	15	15	26	46	18	12	16	15	16	15
29	14	14	16	15	16	16	16	16	17	16	14	14	14	16	15
30	17	15	15	18	14	14	16	16	15	14	16	14	16	15	16
31	14	14	17	15	12	17	16	15	16	15	16	13	17	16	17
32	16	14	15	13	14	14	14	15	15	15	15	15	15	16	15
33	16	15	15	15	15	14	15	16	14	13	17	15	13	15	16
34	15	16	14	13	14	16	17	17	15	15	13	15	14	16	16
35	16	16	16	15	14	14	16	17	16	14	15	13	16	15	14
36	15	16	14	14	17	14	16	16	16	15	13	14	15	15	15
37	15	16	15	15	13	16	15	16	15	15	13	15	15	15	16
38	16	15	14	16	14	13	13	14	16	14	13	15	14	15	15
39	13	15	15	14	14	14	16	14	14	14	17	14	15	15	17
40	16	15	17	14	15	15	15	15	16	15	15	17	16	15	15
41	17	14	15	17	14	15	14	15	15	17	14	14	15	16	16
42	16	17	16	13	14	14	14	16	17	15	17	13	16	16	17

334

VIKING LANDER * CAMERA * FC18 GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON SURVEY OFFSET 1 GAIN 3 L

LINE \ SAMP	250		252		254		256		258		260		262		264
13	4	3	4	3	3	4	4	3	3	3	4	3	3	3	3
14	4	4	4	3	4	3	4	3	4	3	3	3	3	4	3
15	3	3	3	3	3	3	4	3	4	4	3	3	3	4	3
16	4	4	3	3	3	3	3	4	3	3	3	4	4	5	3
17	4	4	3	3	3	4	4	4	3	3	4	3	3	4	3
18	3	4	4	3	3	3	3	3	3	3	3	4	4	4	3
19	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3
20	4	3	3	3	3	4	5	5	4	3	3	3	3	3	3
21	4	3	3	3	3	4	4	4	3	3	4	3	3	4	3
22	4	3	3	3	3	3	4	3	3	3	3	3	3	3	3
23	4	3	3	3	3	3	4	5	3	3	3	3	3	4	3
24	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3
25	4	5	4	3	3	3	3	3	3	3	3	3	3	3	4
26	3	3	3	3	4	4	3	4	4	3	3	3	3	3	3
27	4	3	3	3	3	4	4	15	57	4	3	3	3	3	3
28	3	4	3	3	3	4	4	4	7	3	3	3	3	3	3
29	4	4	3	3	3	5	3	4	4	4	3	3	4	3	3
30	4	3	3	4	4	3	4	3	3	3	3	4	3	3	4
31	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3
32	4	3	3	3	3	3	3	3	3	3	3	4	3	3	3
33	3	3	3	3	3	3	3	4	4	3	3	3	3	4	3
34	3	3	3	3	3	3	4	4	3	3	3	3	3	3	3
35	3	3	3	3	3	3	3	5	3	3	3	3	3	3	3
36	3	3	3	4	3	3	3	4	3	3	3	3	4	4	3
37	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3
38	4	3	3	4	3	3	3	3	3	3	3	3	4	3	3
39	4	3	3	3	3	3	3	3	3	3	3	3	4	3	3
40	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
41	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
42	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

VIKING LANCEF * CAMERA * FC18 GMT TIME **C**C** C
CARK CURRENT SUETRACTOR CN SURVEY OFFSET 1 GAIN 1 L

LINE \ SAMP	250		252		254		256		258		260		262		264
13	16	15	16	15	15	15	15	15	15	15	15	15	15	15	16
14	15	16	15	15	15	15	15	16	16	16	15	16	15	15	15
15	15	15	15	15	16	15	16	15	15	15	15	16	15	16	15
16	16	15	15	16	15	15	16	15	16	15	15	15	15	16	15
17	16	15	15	15	16	15	15	15	15	15	16	15	16	15	16
18	16	16	15	15	16	15	15	16	15	15	16	15	15	16	15
19	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
20	15	15	15	15	15	15	15	15	15	15	15	15	16	15	15
21	15	15	15	15	15	16	16	15	15	15	15	15	15	15	15
22	15	15	14	15	15	15	15	16	15	15	15	15	15	15	15
23	15	15	16	15	15	15	15	15	16	15	15	15	15	15	15
24	16	15	15	15	15	15	15	15	15	15	15	15	15	15	15
25	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
26	14	15	15	15	15	16	15	16	16	15	15	15	15	15	15
27	15	14	14	15	15	15	16	62	62	16	15	15	15	15	14
28	15	15	15	16	15	15	15	17	22	16	15	15	16	15	14
29	15	15	15	15	15	15	16	15	15	14	15	15	15	15	15
30	15	15	15	15	15	14	15	15	15	15	16	15	15	15	15
31	16	15	15	15	15	15	15	15	15	14	15	15	15	15	15
32	15	15	15	15	14	15	15	15	15	15	15	15	15	15	15
33	15	15	15	16	15	15	15	16	15	14	15	15	15	15	15
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38	15	15	15	15	15	15	15	15	14	16	15	15	15	15	15
39	15	15	14	14	15	15	15	15	15	15	15	15	15	15	16
40	15	15	14	14	14	14	15	15	15	14	14	14	15	15	14
41	15	15	15	15	15	15	15	15	15	15	15	14	15	15	15
42	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Morrell

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 1/3/75

CALIBRATION RUN COLOR RESPONSE VS. ELEVATION ANGLE, FC-1B CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Table 1: Raw data from the Color Response Test consisting of mean DN and standard deviation for a 3x3 pixel area centered on the image of the MMA Radiometric source with a 2 cm aperture. The source was imaged at three different elevation pointing angles for each channel.

Graph I and II: Plots of data from Table 1.

Results Summary attached.

TEST DESCRIPTION The MMA Radiometric source with a 2 cm aperture was imaged by the infrared and visual color channels at three different pointing angles (0, +10°, -30°). The swing fixture was used to offset the elevation angle.

DATA PROCESSING DESCRIPTION The mean DN and standard deviation was computed for a 3x3 pixel area centered on the image.

ANALYST Michael E. Morrell

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

There appears to be no significant color response vs. elevation effect because we see no correlation of the data between FC-1B, FC-2A and SPARE. This lack of correlation will be checked against the remaining cameras as the test data is processed.

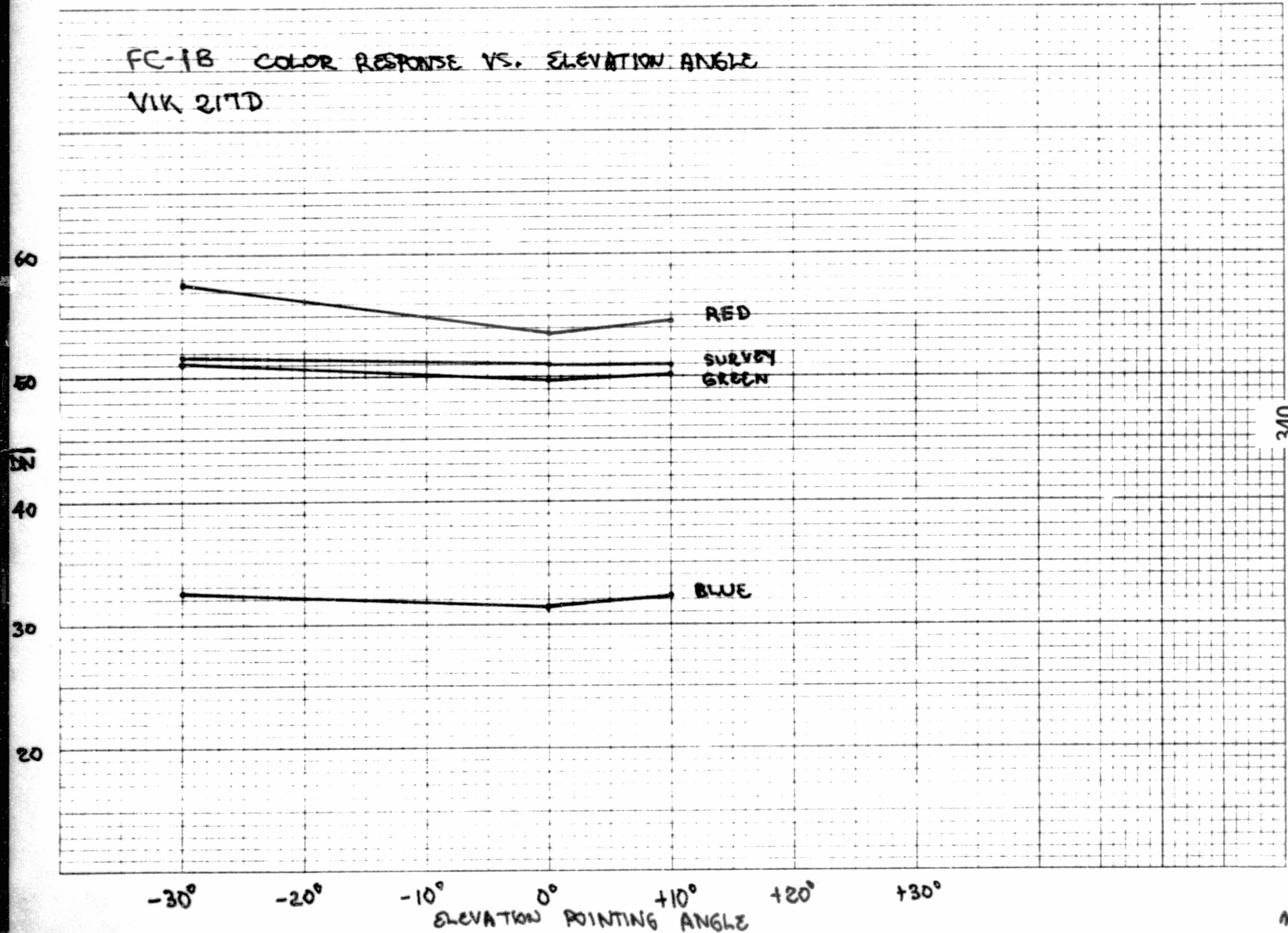
TABLE I

Color Response vs. Elevation Angle

Tape: VIK 217D **Files 56 - 76**

Camera: FC-1B **Raw Data**

CHAN.	ELEV	OFFSET	GAIN	$\overline{DN}$	σ	PSA TEMP °C	FILE
RED	0°	1	4	53.778	0.441	+22	56
BLUE	0°	1	4	31.333	0.500	+24	57
GREEN	0°	1	4	49.889	0.601	+24	58
IR1	0°	1	4	47.000	0.500	+24	59
IR2	0°	1	4	42.444	0.527	+24	60
IR3	0°	1	4	41.000	0.707	+24	61
SURVEY	0°	1	4	51.000	0.500	+24	62
RED	+10°	1	4	54.444	0.527	+24	63
BLUE	+10°	1	4	32.222	0.667	+24	64
GREEN	+10°	1	4	50.111	0.333	+24	65
IR1	+10°	1	4	47.111	0.601	+24	66
IR2	+10°	1	4	42.667	0.500	+24	67
IR3	+10°	1	4	41.111	0.601	+24	68
SURVEY	+10°	1	4	50.889	0.333	+24	69
RED	-30°	1	4	57.778	0.441	+24	70
BLUE	-30°	1	4	32.444	0.527	+24	71
GREEN	-30°	1	4	51.000	0.000	+24	72
IR1	-30°	1	4	46.778	0.667	+24	73
IR2	-30°	1	4	41.667	0.500	+24	74
IR3	-30°	1	4	41.000	0.000	+24	75
SURVEY	-30°	1	4	51.667	0.500	+24	76


FC-1B COLOR RESPONSE VS. ELEVATION ANGLE
VIK 217D
60
50
DN
40
30
20
RED
SURVEY
GREEN
BLUE
-30°
-20°
-10°
0°
+10°
+20°
+30°
ELEVATION POINTING ANGLE

340

MEM

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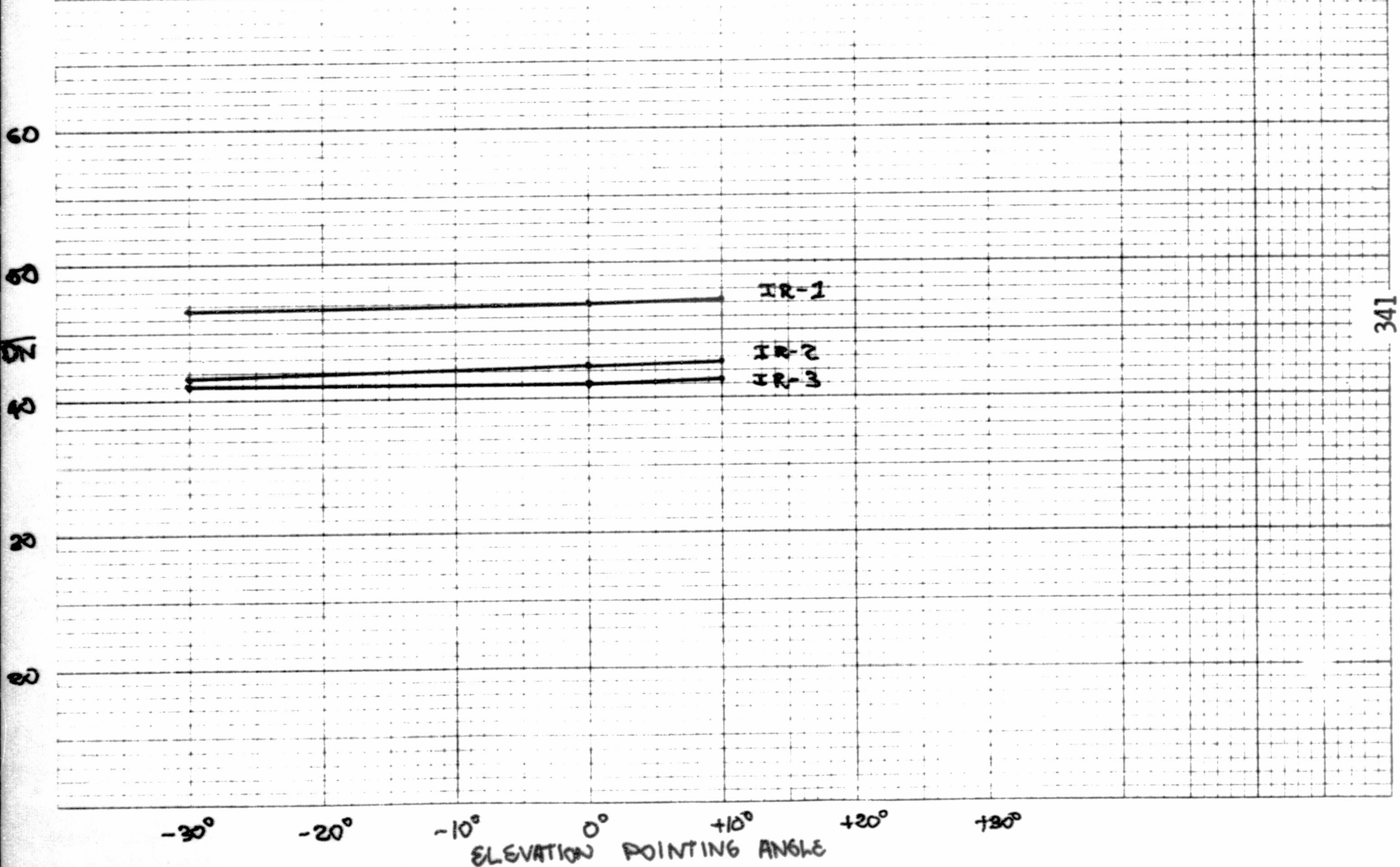
FC-18 COLOR RESPONSE VS. ELEVATION ANGLE

VIK 21TD



341

Merrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 11/8/74

CALIBRATION RUN INTERNAL CAL. THERMAL CAL FC-1B

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of Internal Cal #2 and Cal #3 for every diode at +10°C, -25°C and -41°C (Tables I-III). Table of % Response vs. Temp. Middle Temp taken at 100%.

TEST DESCRIPTION Internal Calibrate source at level 2 and level 3 was selected for each diode at 3 temperatures in the Thermal Vacuum Chamber.

DATA PROCESSING DESCRIPTION Mean DN and σ were listed for the last 100 samples of the third line in each PDF. DN was divided by gain as a function of temperature, middle temp taken as 100%.

ANALYST Michael E Merrill

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

The Blue diode channel at gain #0 is extremely noisy (Raw σ's $\approx$7-10). Correcting to gain #1 gives $\sigma \approx$3.5-5.0 compared to $\sigma \approx$1.4-2.2 for the BB diodes at gain #1.

DN values were divided by the gains as a function of temperature to remove gain dependence from the data. Taking the middle temperature data as 100%, the response was tabulated as a function of temperature for each diode (Table IV). The wide range in % response indicates a possible PSA temperature dependence.

Both of these problems will be monitored for all cameras.

TABLE I

FC-1B Internal Calibration Thermal Cal Test

VIK 238D

PSA temp ~+10°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	P.D.F.
2	BB1	1	1	30.420	1.416	31
3	BB1	1	2	28.900	0.965	32
2	BB2	1	1	28.050	1.126	33
3	BB2	1	2	29.740	0.611	34
2	BB3	1	1	37.450	1.099	35
3	BB3	1	2	42. ~~26~~.600	0.568	36
2	BB4	1	1	36.860	1.096	37
3	BB4	1	2	39.650	0.623	38
2	BLUE	1	0	35.460	7.~~735~~ .753	39
3	BLUE	1	1	29.530	3.925	40
2	GREEN	1	0	41.770	3.124	41
3	GREEN	1	1	40.220	1.426	42
2	RED	1	1	36.510	0.625	43
3	RED	1	2	40.060	0.370	44
2	IR1	1	1	34.120	1.203	45
3	IR1	1	2	33.200	0.617	46
2	IR2	1	1	25.950	1.417	47
3	IR2	1	2	21.270	0.646	48
2	IR3	1	1	25.050	1.081	49
3	IR3	1	2	18.370	0.560	50
2	SURVEY	1	1	36.880	0.517	51
3	SURVEY	1	2	38.450	0.498	52

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TABLE II

FC-1B Internal Calibration Thermal Cal Test

VIK 238D   PSA Temp -25°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	P.D.F.
2	BB1	1	1	28.430	1.872	96
3	BB1	1	2	28.530	0.888	97
2	BB2	1	1	27.280	1.040	98
3	BB2	1	2	28.930	0.778	99
2	BB3	1	1	36.690	1.369	100
3	BB3	1	2	42.070	0.638	101
2	BB4	1	1	35.790	1.410	102
3	BB4	1	2	39.260	0.730	103
2	BLUE	1	0	31.900	8.273	104
3	BLUE	1	1	28.~~000~~ .800	3.774	105
2	GREEN	1	0	41.340	3.371	106
3	GREEN	1	1	37.780	1.610	107
2	RED	1	1	33.870	0.935	108
3	RED	1	2	40.740	0.504	109
2	IR1	1	1	33.070	1.381	110
3	IR1	1	2	32.930	0.752	111
2	IR2	1	1	25.570	1.478	112
3	IR2	1	2	19.720	0.801	113
2	IR3	1	1	23.510	1.118	114
3	IR3	1	2	17.850	0.555	115
2	SURVEY	1	1	35.420	0.620	116
3	SURVEY	1	2	38.110	0.315	117

TABLE III

FC-1B Internal Calibration Thermal Cal Test

VIK 237D PSA Temp -41°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	P.D.F.
2	BB1	1	1	32.040	2.204	31
3	BB1	1	2	29.430	1.151	32
2	BB2	1	1	28.890	1.462	33
3	BB2	1	2	29.940	0.893	34
2	BB3	1	1	37.780	1.853	35
3	BB3	1	2	41.340	0.875	36
2	BB4	1	1	36.330	1.626	37
3	BB4	1	2	39.430	1.071	38
2	BLUE	1	0	34.950	9.993	39
3	BLUE	1	1	27.020	3.647	40
2	GREEN	1	0	43.110	3.821	41
3	GREEN	1	1	41.740	1.804	42
2	RED	1	1	35.120	1.061	43
3	RED	1	2	40.780	0.687	44
2	IR1	1	1	33.910	1.422	45
3	IR1	1	2	32.710	0.931	46
2	IR2	1	1	24.650	2.234	47
3	IR2	1	2	19.190	0.997	48
2	IR3	1	1	26.940	1.103	49
3	IR3	1	2	18.140	0.735	50
2	SURVEY	1	1	37.520	0.539	51
3	SURVEY	1	2	38.020	0.601	52

-46

TABLE IV

% RESPONSE (DN/G) as function of Temperature

(Middle Temperature taken as 100%)

CALIBRATE #2 OFFSET #1

Diode	%(DN/G)/Temp	%(DN/G)/Temp	%(DN/G)/Temp
BB1	106.34/+10°C	100.0/-25°C	112.70/-41°C
BB2	102.19/+10°C	100.0/-25°C	105.90/-41°C
BB3	101.45/+10°C	100.0/-25°C	102.97/-41°C
BB4	102.36/+10°C	100.0/-25°C	101.51/-41°C
BLUE	106.36/+10°C	100.0/-25°C	113.10/-41°C
GREEN	99.68/+10°C	100.0/-25°C	107.65/-41°C
RED	107.13/+10°C	100.0/-25°C	103.69/-41°C
IR1	102.54/+10°C	100.0/-25°C	102.54/-41°C
IR2	100.86/+10°C	100.0/-25°C	96.40/-41°C
IR3	105.90/+10°C	100.0/-25°C	114.59/-41°C
SURVEY	103.48/+10°C	100.0/-25°C	105.93/-41°C

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 11/8/74

CALIBRATION RUN FC-1B CAL-BOT OFFSET TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

1. Table of Offsets in Millivolts
2. Graph of Millivolts vs. Offset Number
3. The Mean Millivolts/Offset Step

TEST DESCRIPTION D.C. voltage was input to the test connector. The camera was operated at a gain of 3. A PDF was taken at each offset, adjusting the D.C. voltage every 5 frames to avoid saturation (repeating the last offset when this was done).

DATA PROCESSING DESCRIPTION Mean DN was listed for each of the 37 PDF (SL = 80, SS = 200, NL = 30, NS = 30). These DN's were divided by the camera gain (55.577942) to generate an "offset ladder" for each analog input. (End points were set equal to give a continuous relationship for graphing.) A least squares fit was used to arrive at the slope or mean millivolts/offset step.

ANALYST Michael Edward Morrill

APPROVAL Michael R. Wolf

FC-1B CAL BOT OFFSET TEST

SLOPE= -0.143602 millivolts/offset step

GAIN VALUE= 55.577942

OFFSET NUMBER	DN VALUES	OFFSET IN VOLTS
0	56.046	0.208421
1	48.058	0.064695
~~2~~	~~40.004~~	~~-0.088216~~
3	32.094	-0.222541
4	24.001	-0.368156
5	16.004	-0.512044
5	55.018	-0.512044
6	47.166	-0.653323
~~7~~	~~39.179~~	~~-0.797031~~
8	31.936	-0.927352
9	23.939	-1.071239
10	15.903	-1.215829
10	54.660	-1.215828
11	46.496	-1.362721
~~12~~	~~38.097~~	~~-1.513842~~
13	30.610	-1.648554
14	22.809	-1.788916
15	14.633	-1.936024
15	53.407	-1.936023
16	45.564	-2.077141
17	37.896	-2.215108
18	29.764	-2.361425
19	21.667	-2.507113
20	13.283	-2.657964
20	52.157	-2.657964
21	44.198	-2.801168
~~22~~	~~36.461~~	~~-2.940376~~
23	28.489	-3.083816
24	20.004	-3.236485
25	12.051	-3.379580
25	56.997	-3.379580
26	48.977	-3.523881
~~27~~	~~41.006~~	~~-3.667362~~
28	32.300	-3.823946
29	24.997	-3.955347
30	17.002	-4.099199
31	8.996	-4.243249

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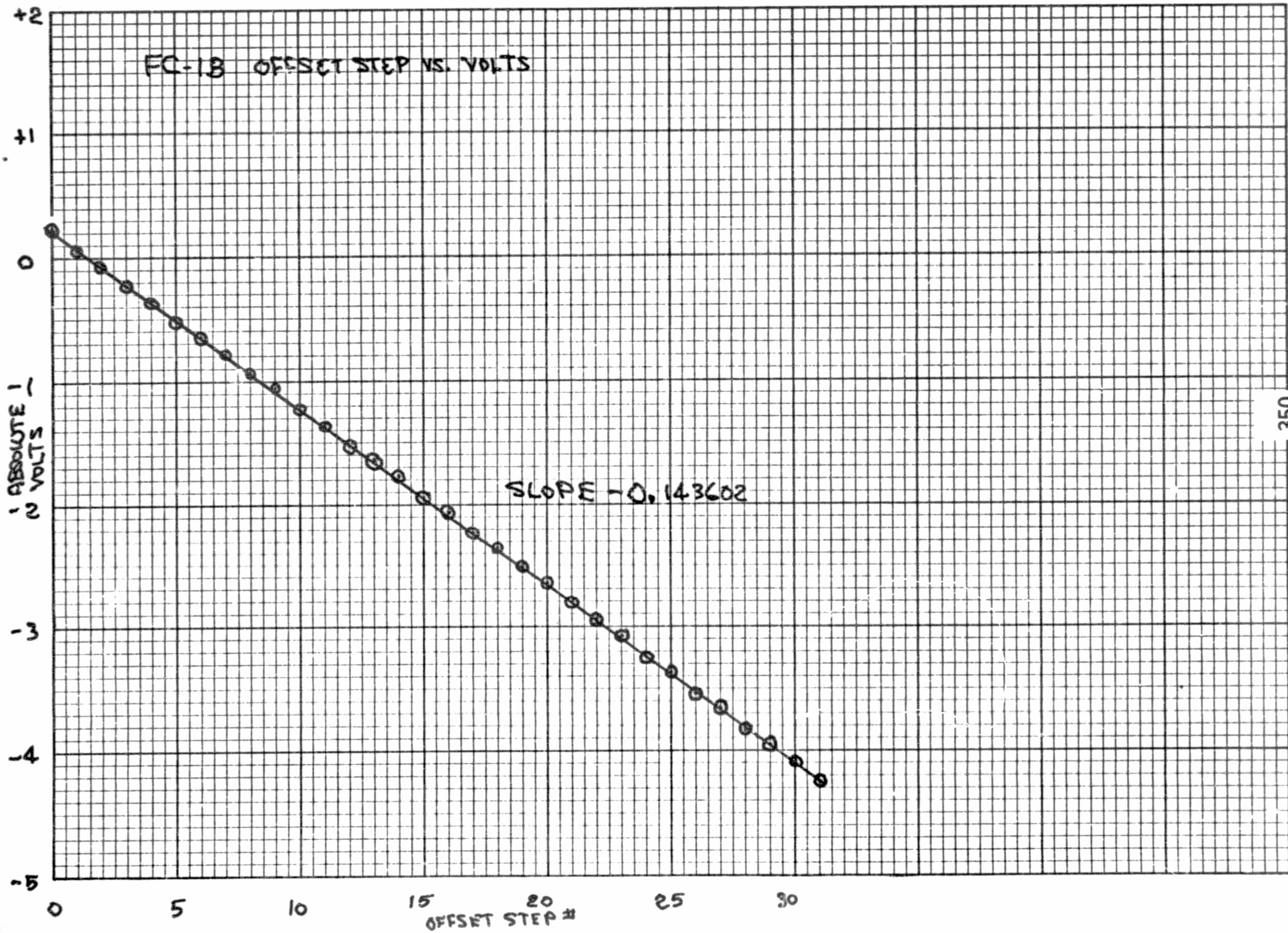

350

MGM

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 10/31/74

CALIBRATION RUN FC-1B GAIN TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Plots of DN vs. voltage input for all six gain settings and three temperatures.

Tables of the plotted values. Plots of gain percent vs. temperature.

Results summary attached.

TEST DESCRIPTION Various voltages were input to the video amplifier directly via the test connector. 2.5° PDF's were generated at each of five voltage levels for all gain settings and three temperatures.

DATA PROCESSING DESCRIPTION Mean DN and standard deviation were calculated for the 30x30 pixel area (total = 900 pixels) starting at line 80 and sample 200. Linear least squares was used to determine the slope of DN vs. voltage relationship. 90 PDF's were processed.

ANALYST Michael B. Morrill

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

Overall the Thermal Vac Gain Test data for FC-1B looks very good. The σ's range from 0.0 to 0.8 indicating overall low noise in Gain tests. Linear least squares analysis for each test to obtain a best fit slope value also showed very low scatter of data points. All data points for partially saturated frames have been discarded before the linear least squares analysis.

The worst temperature variation in % Gain is ±4% at Gain = 0. All other Gains have % variation of 1.5% or less.

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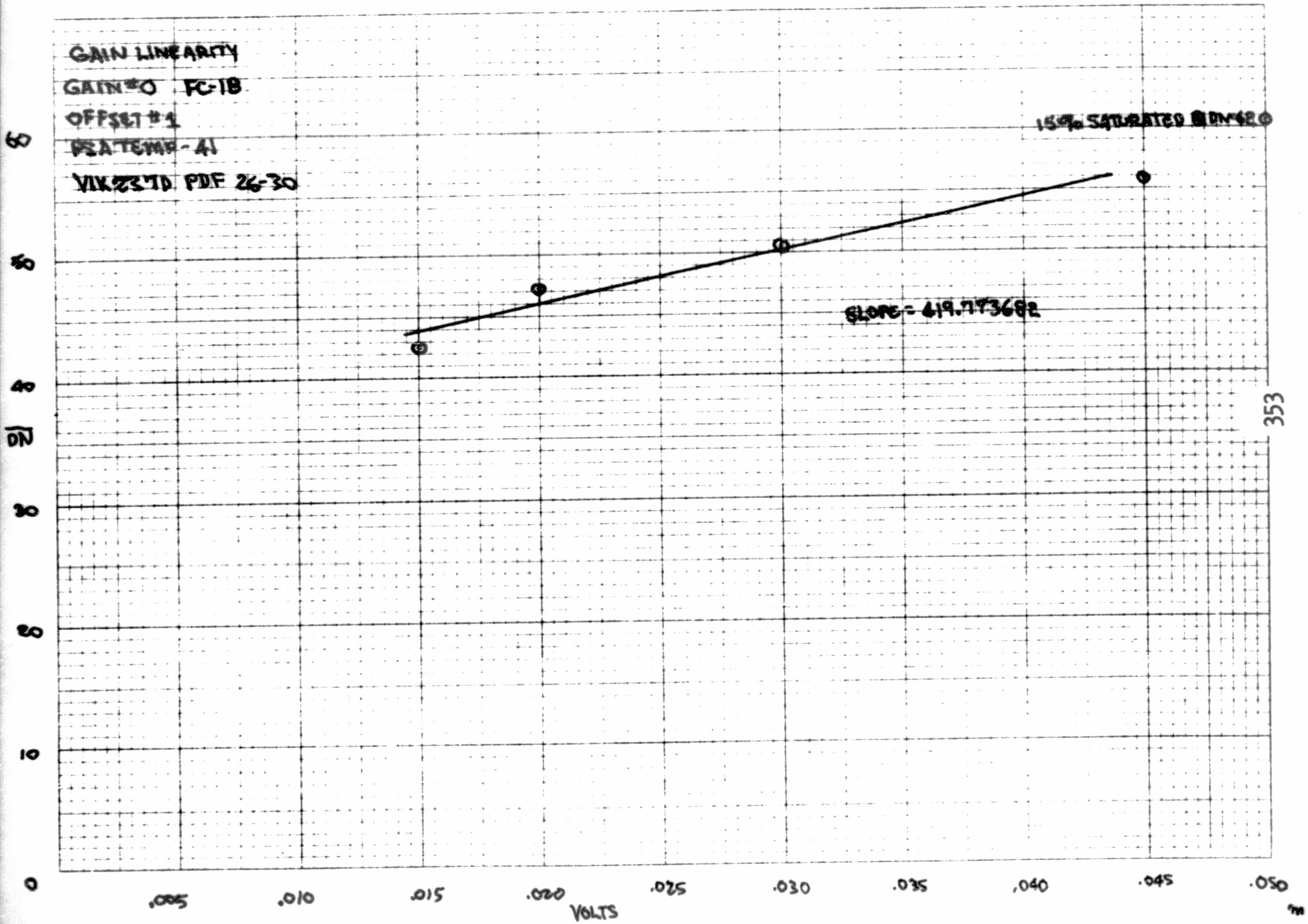

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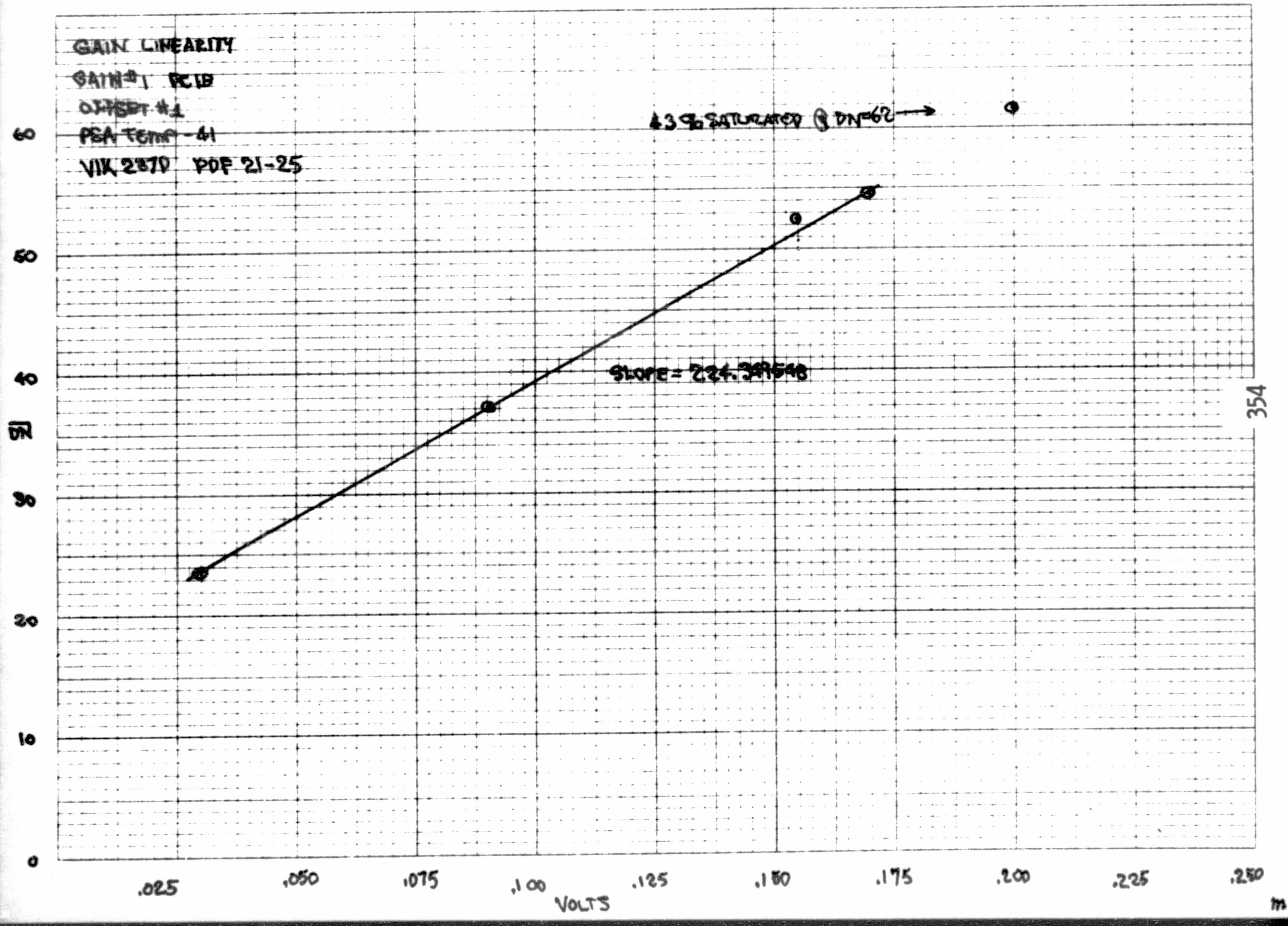

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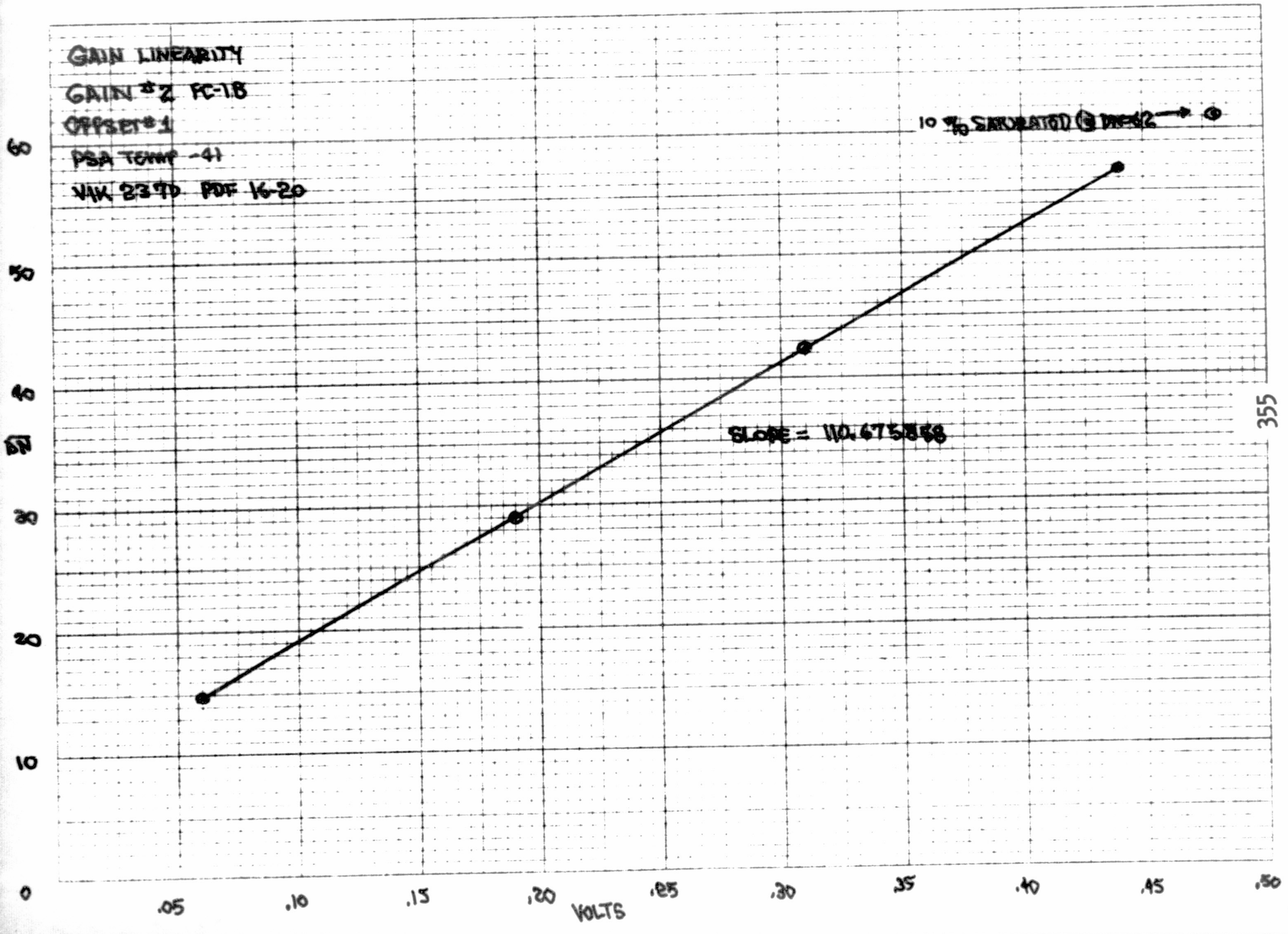

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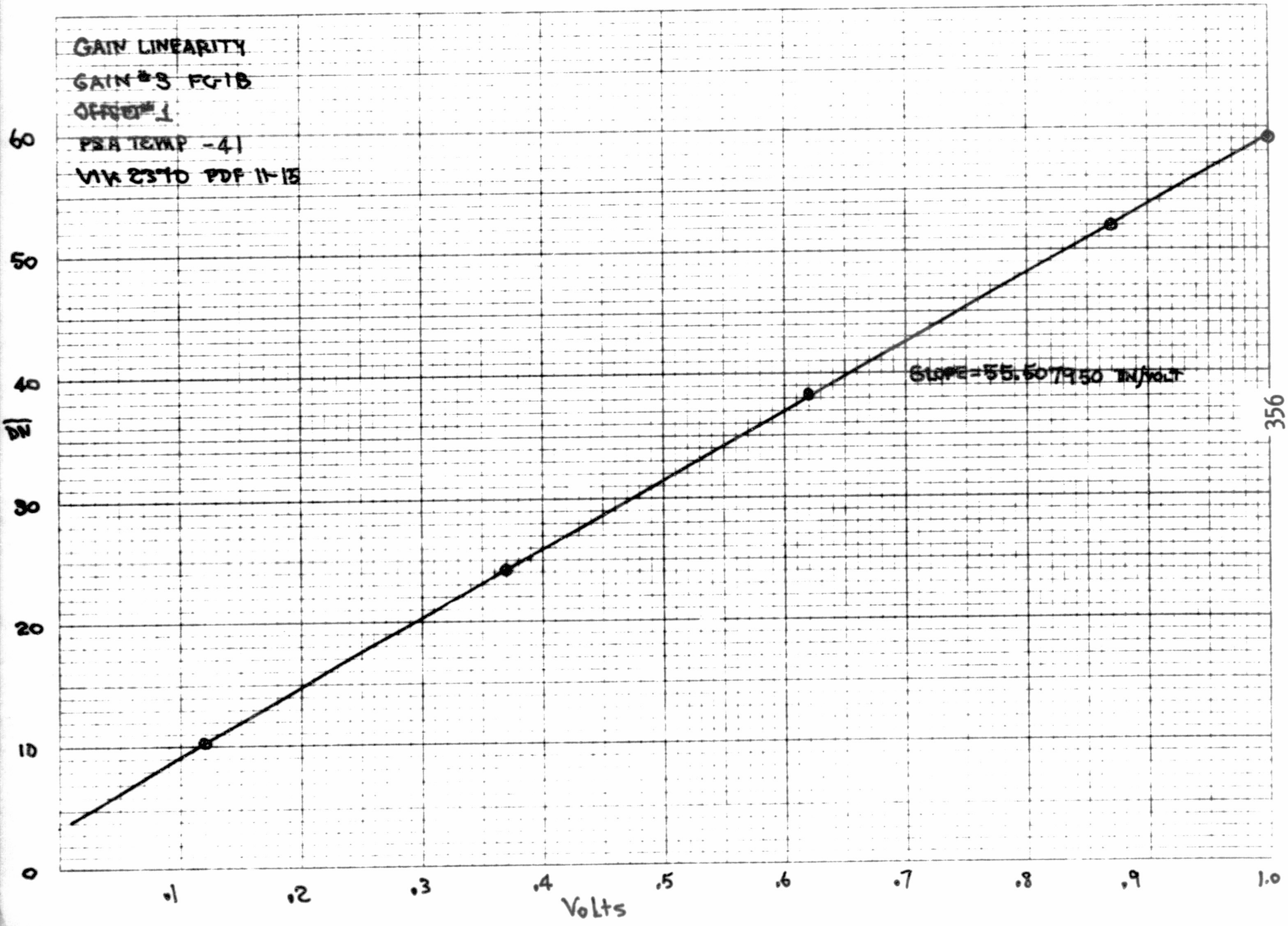

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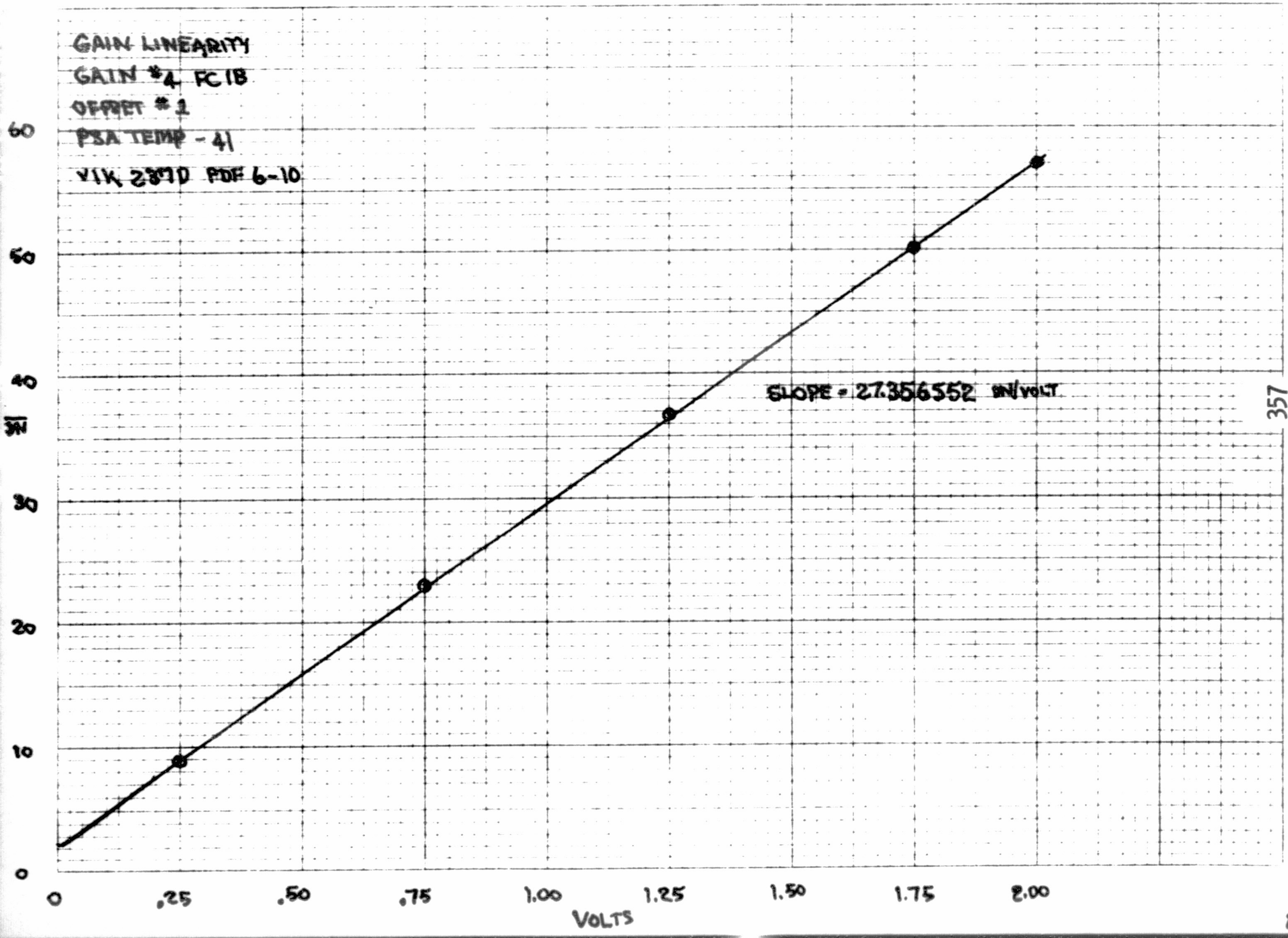

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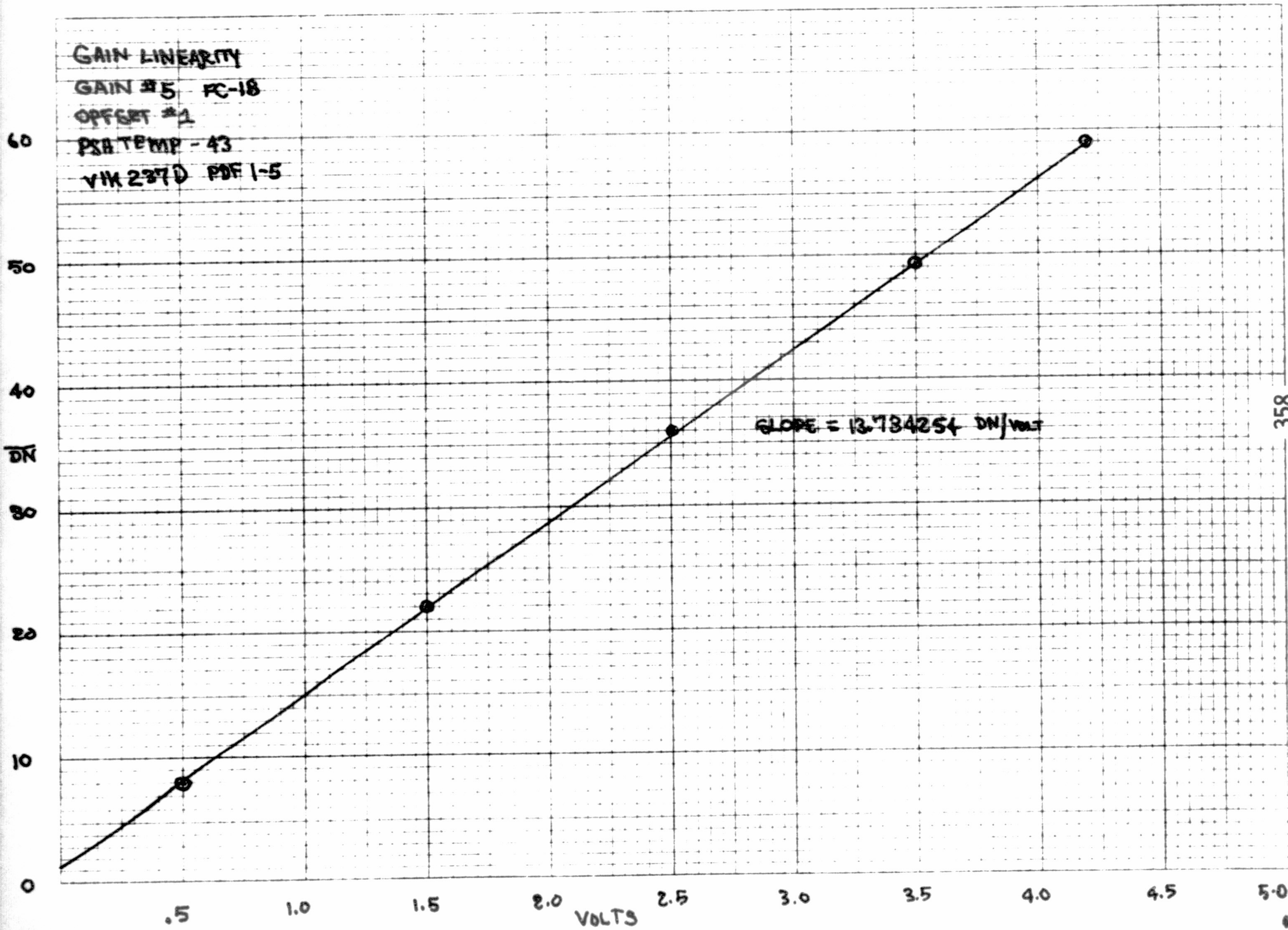

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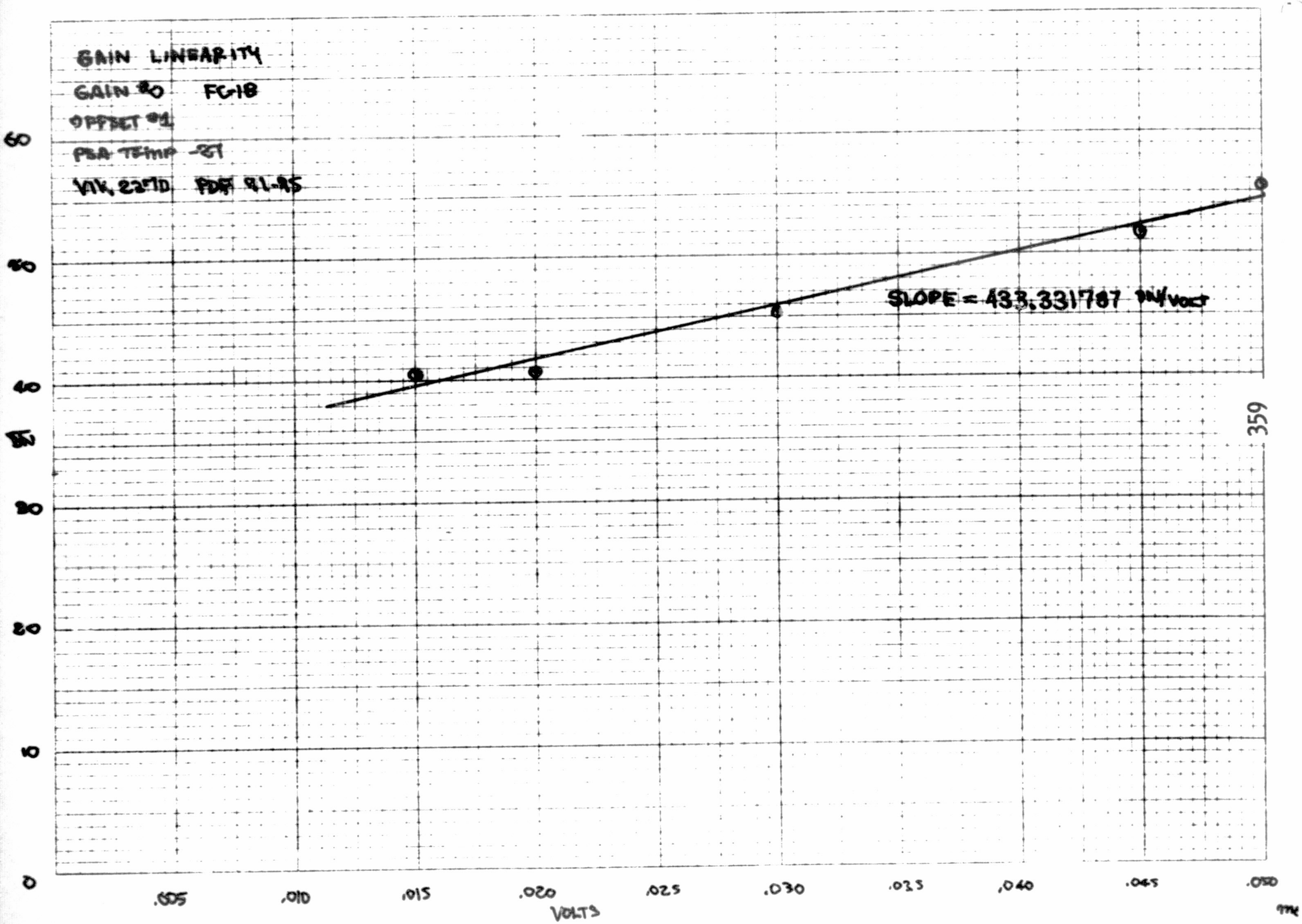

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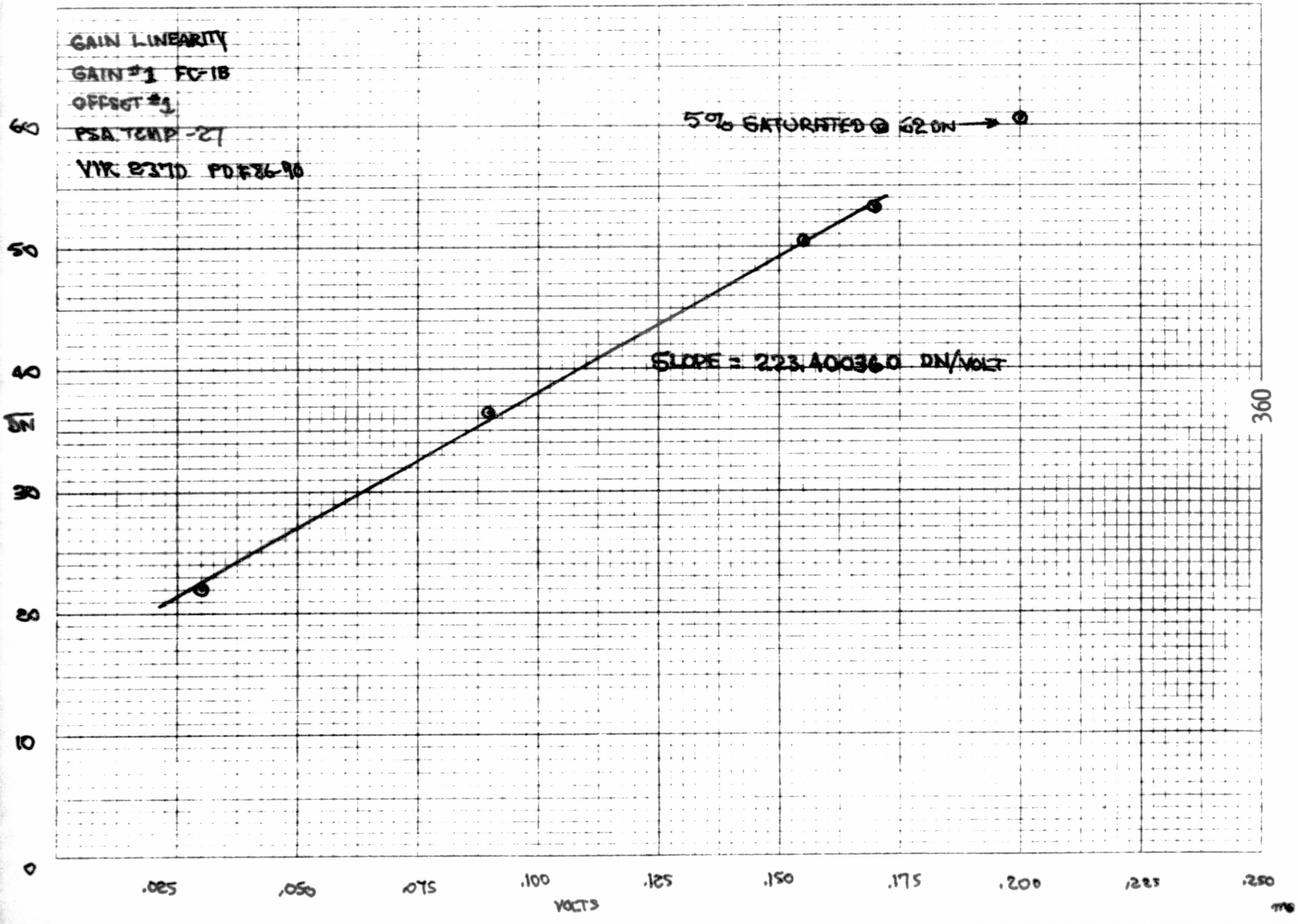

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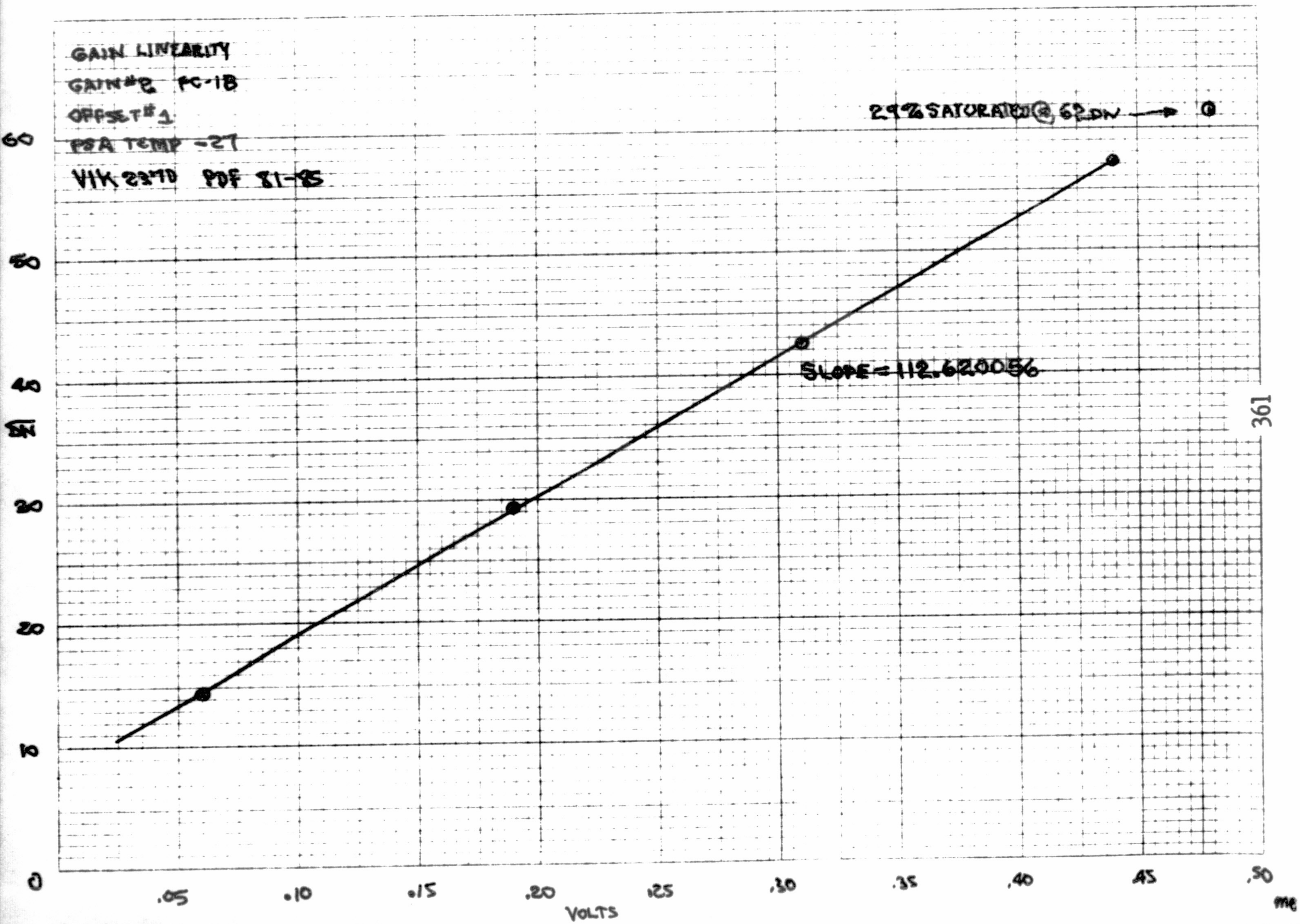

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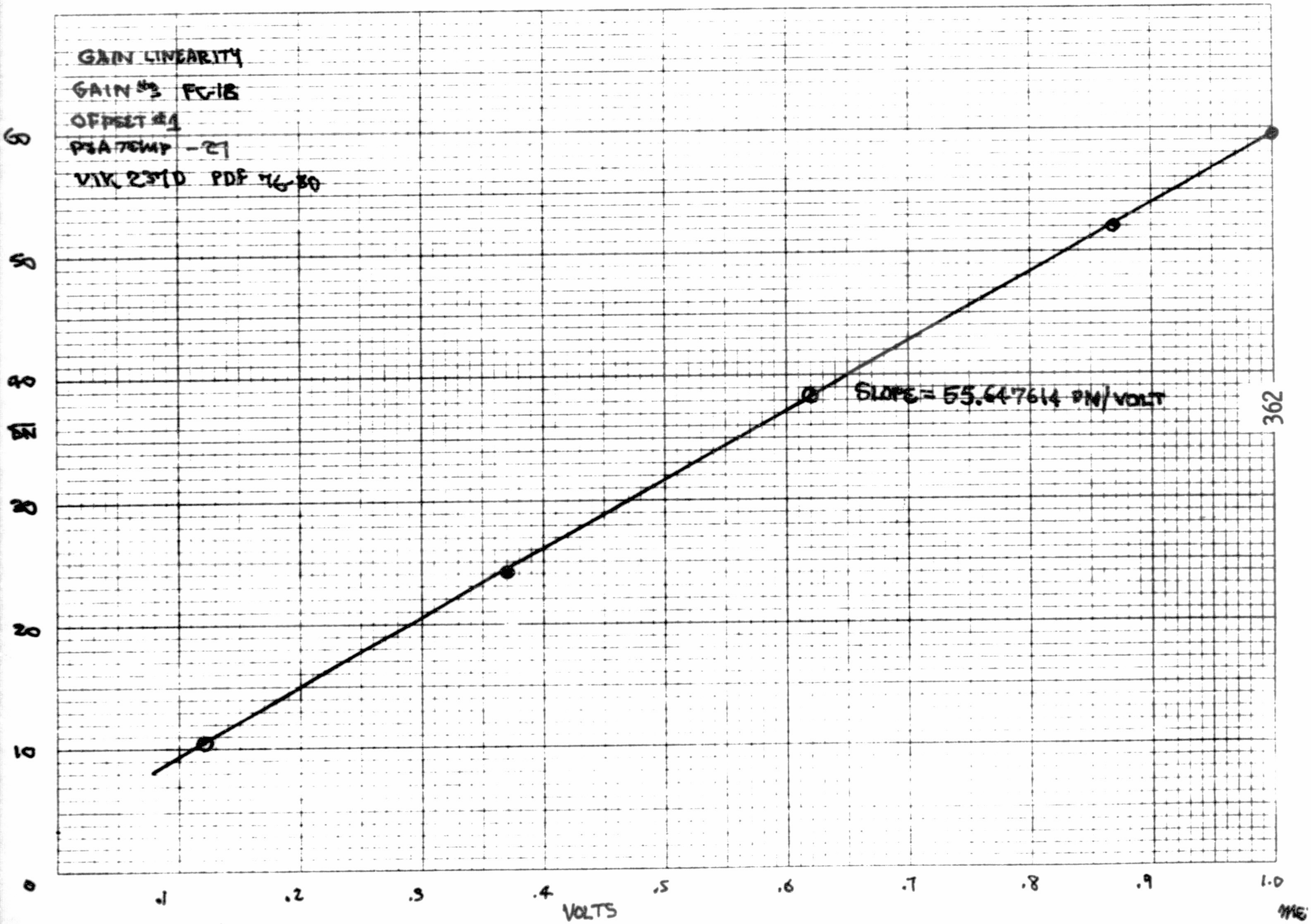

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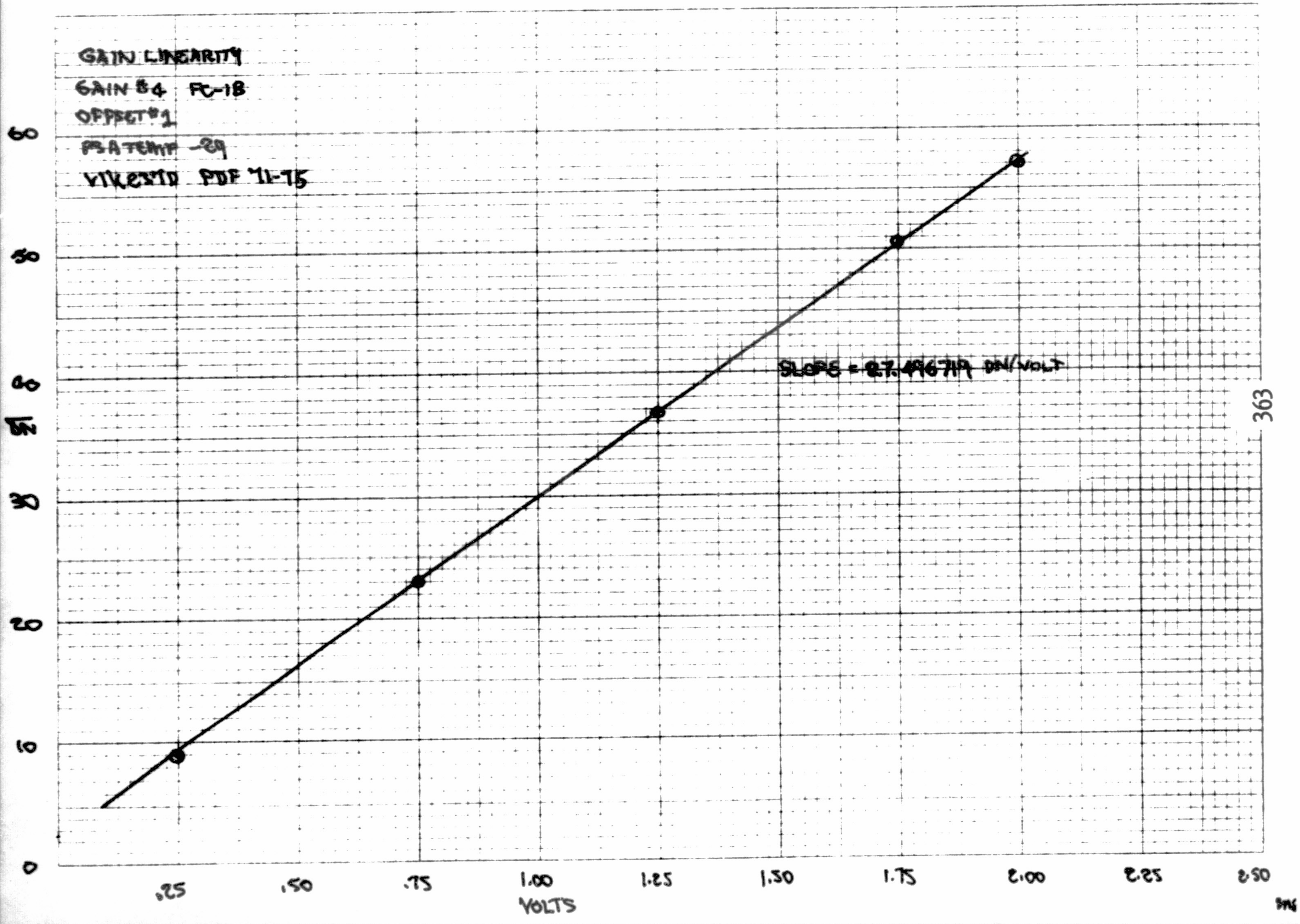

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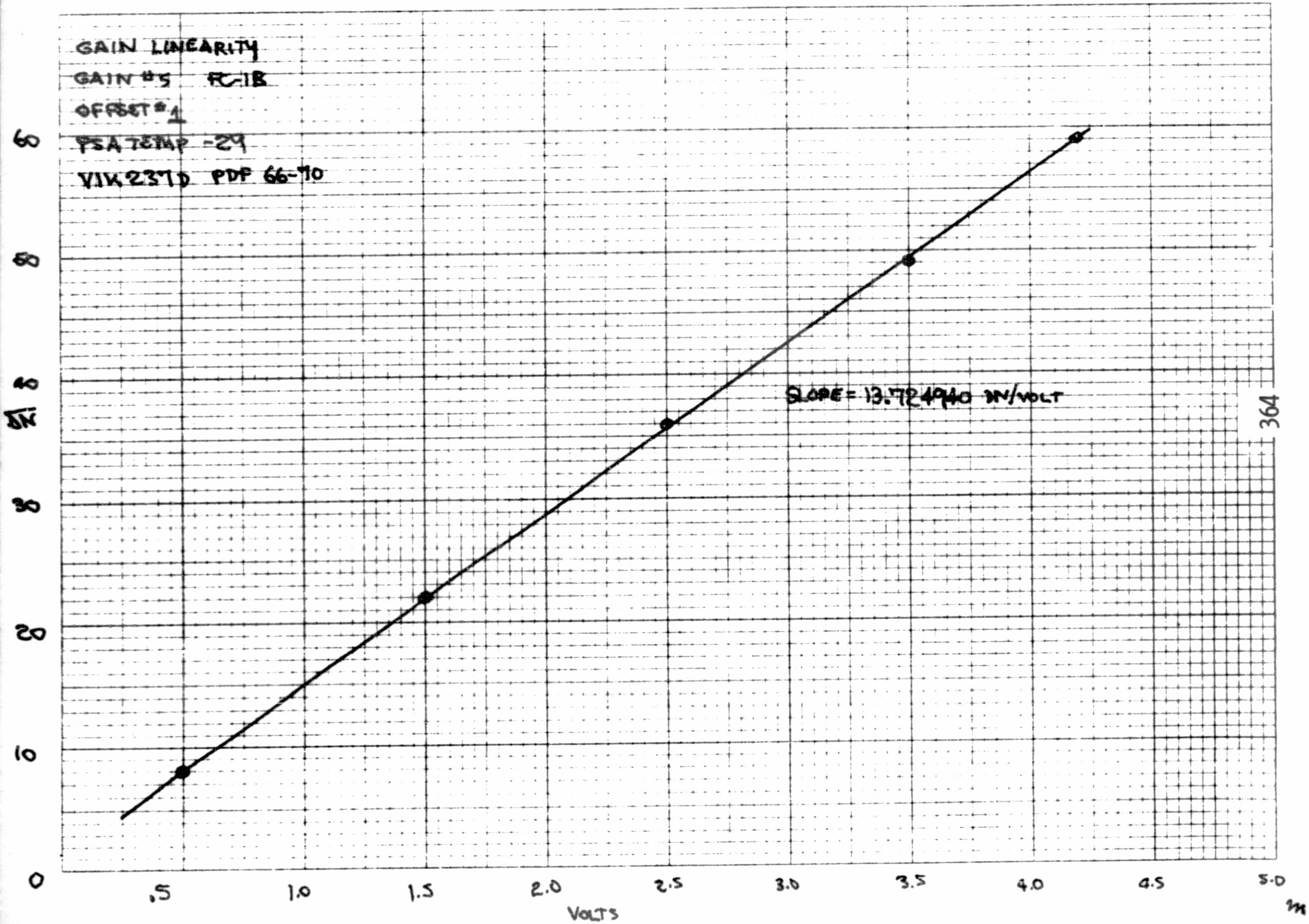

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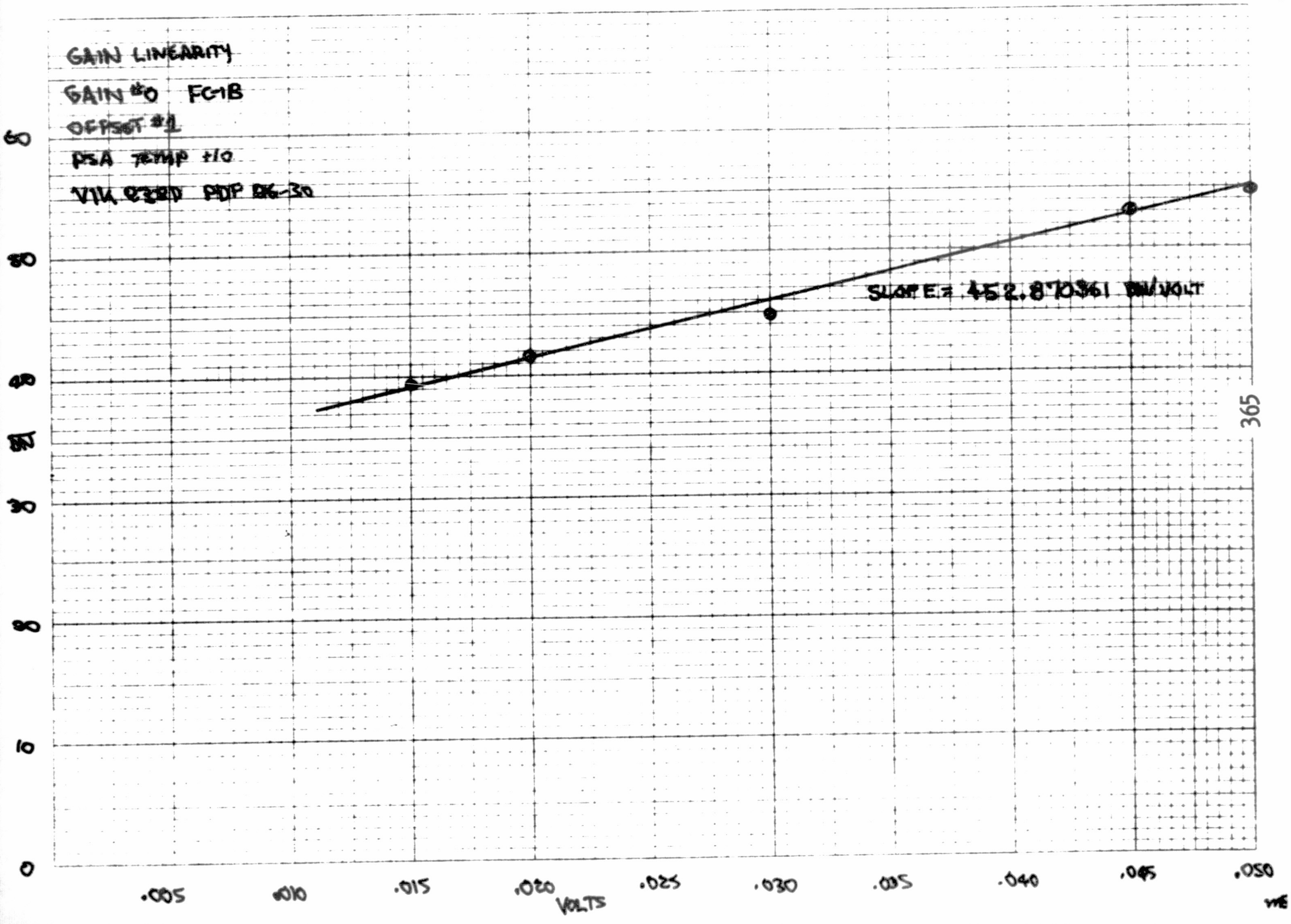

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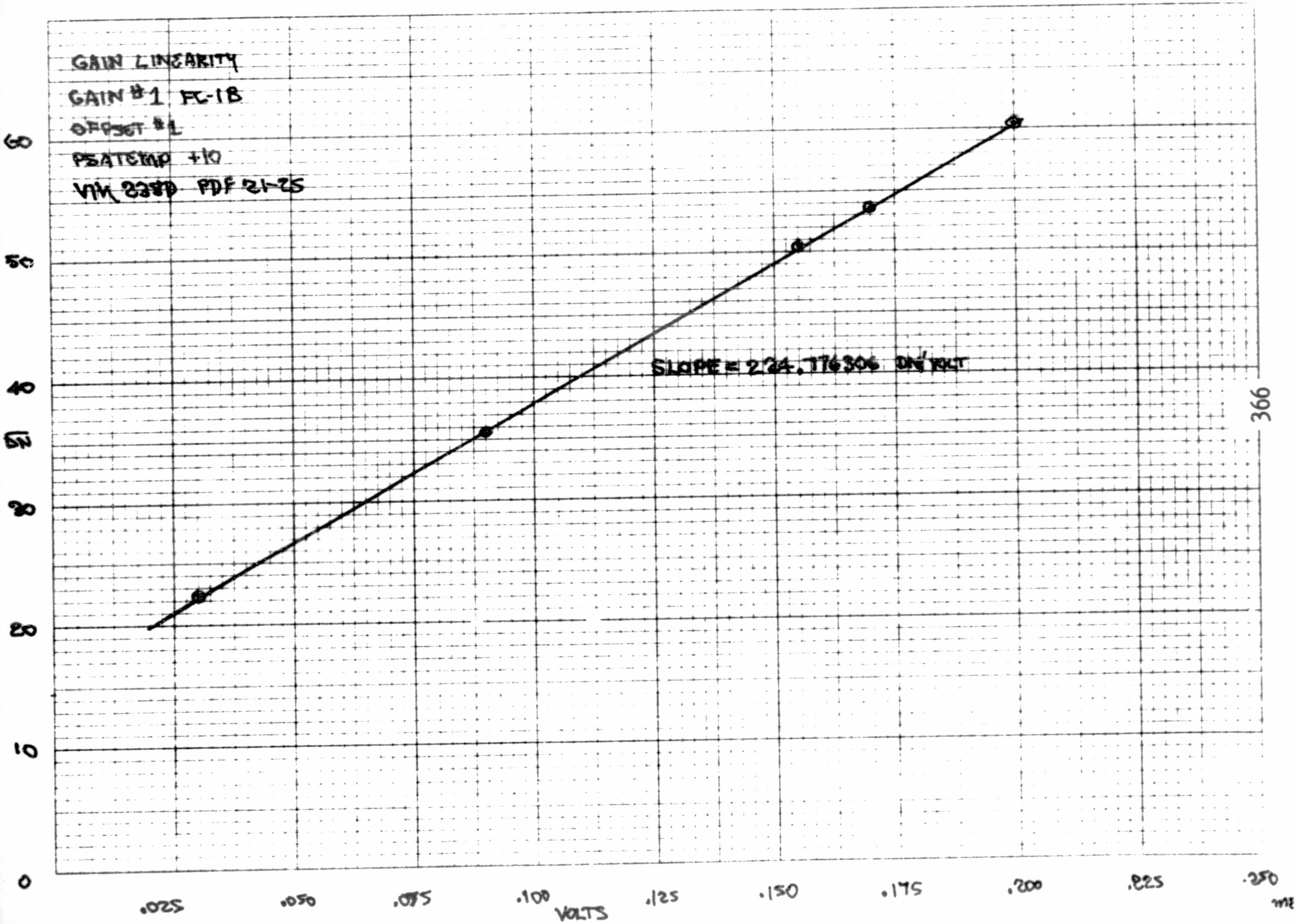

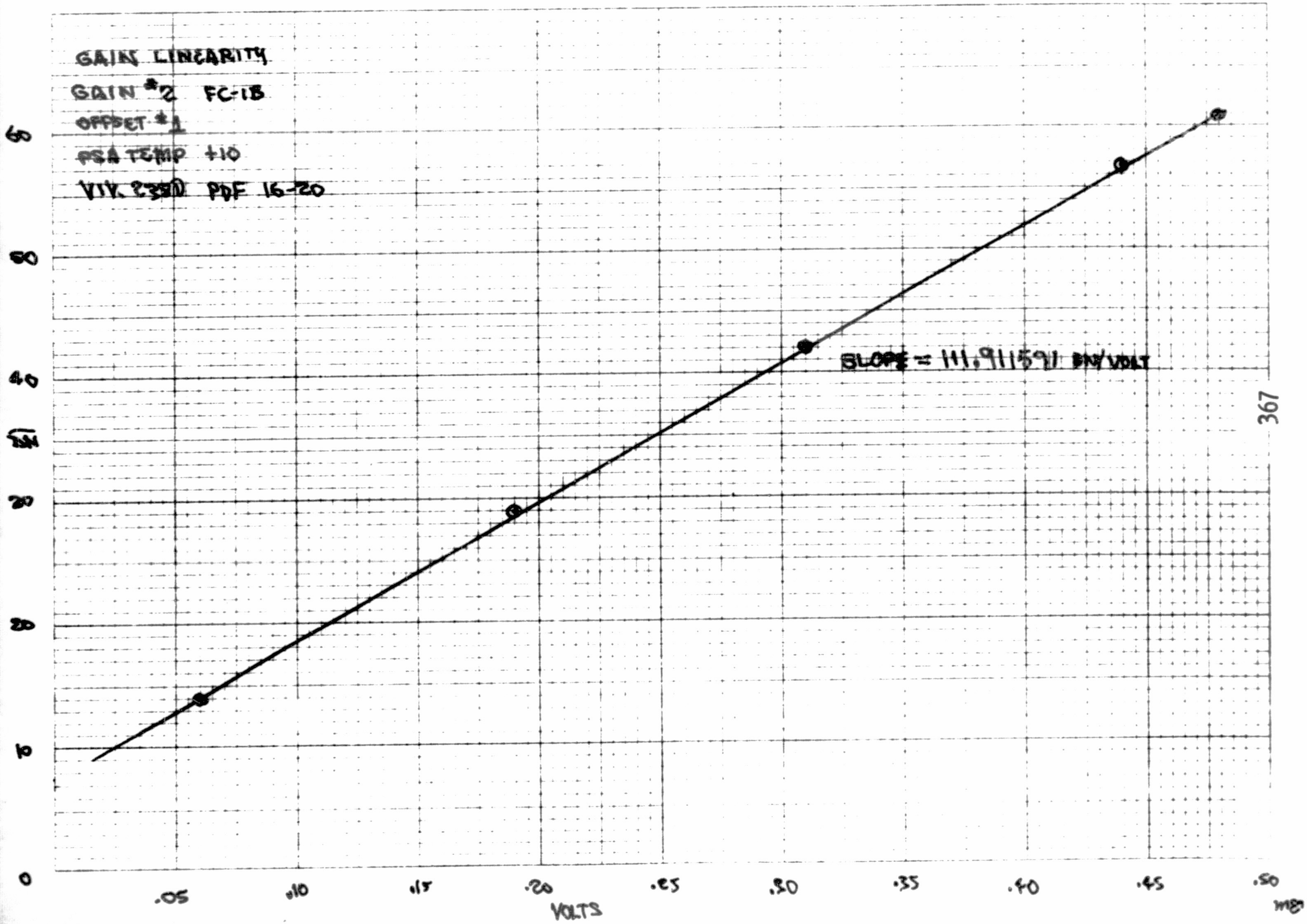
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OFFSET #1
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SLOPE = 111.911591 BN/VOLT
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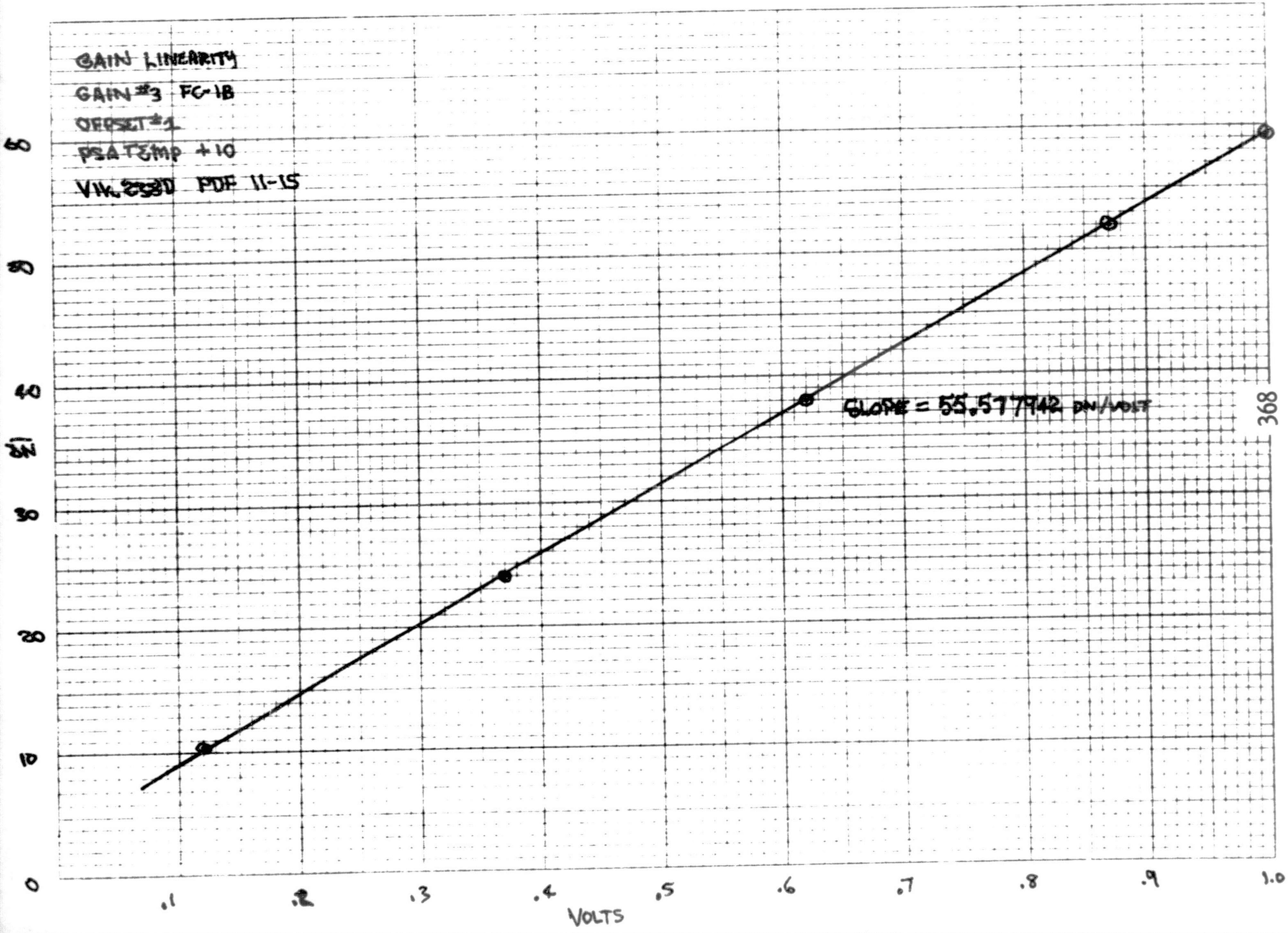

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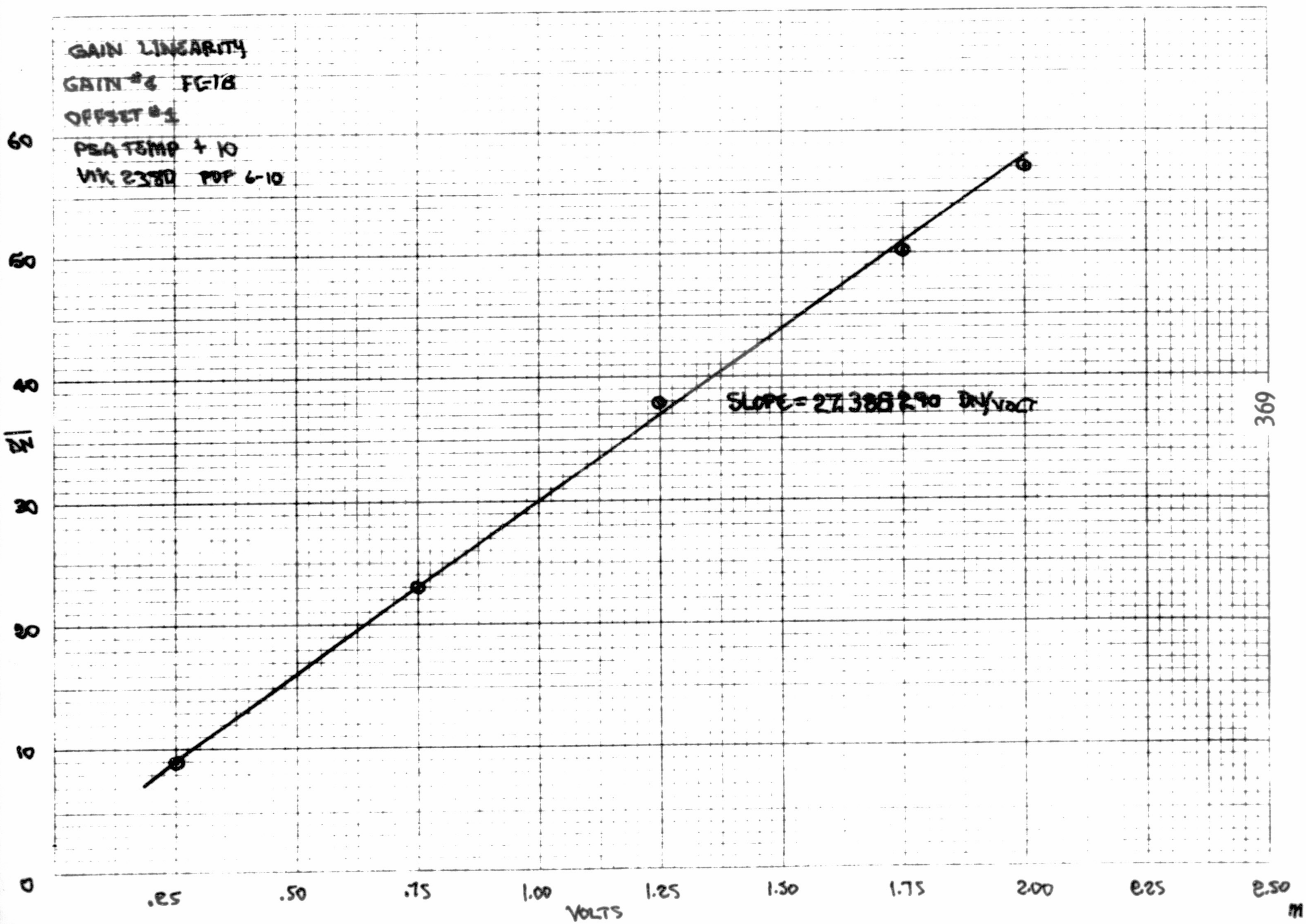

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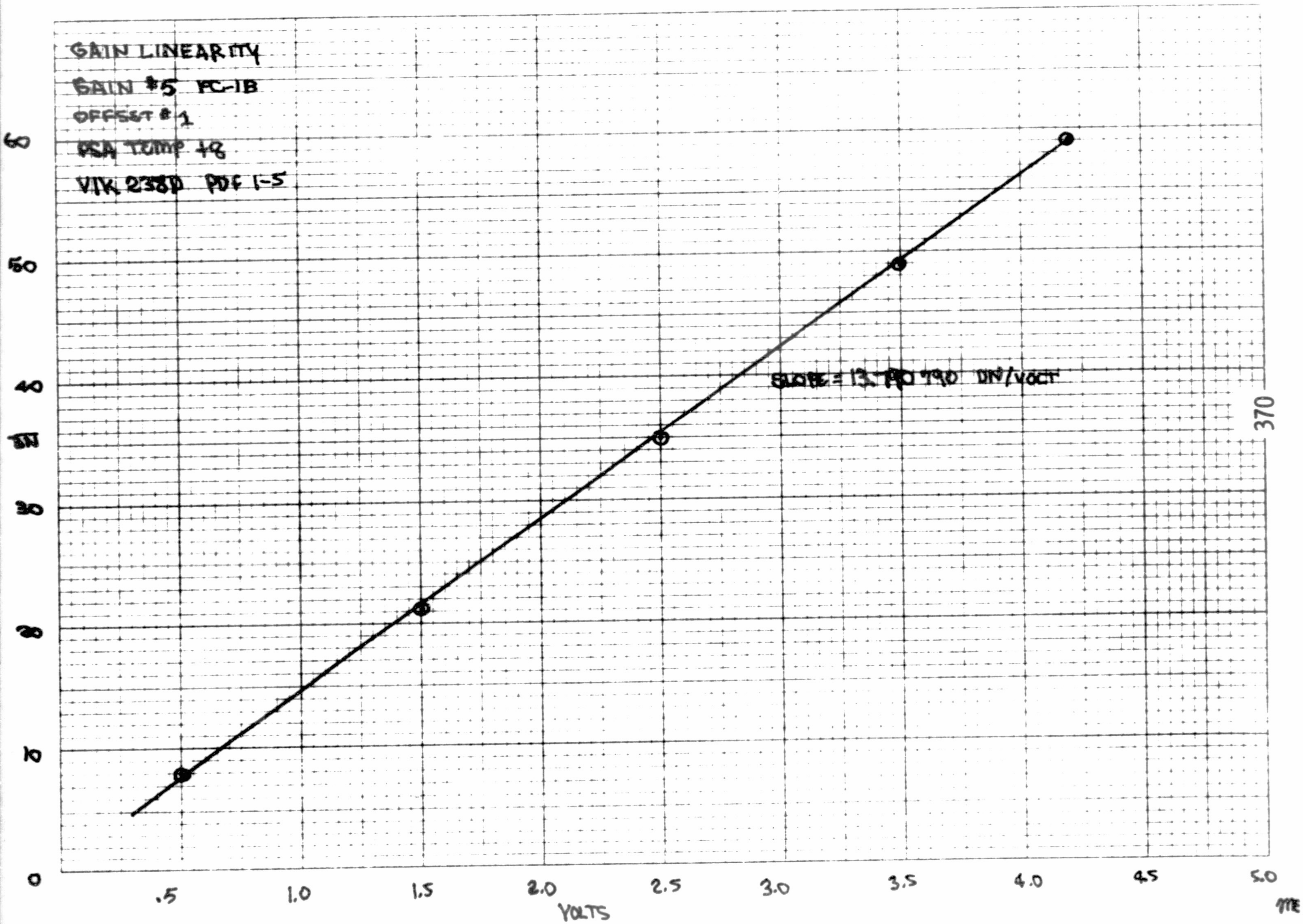

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 26-30

GAIN = 0 OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.050	*60.458		0.978
0.045	55.973		1.007
0.030	50.506		0.998
0.020	47.133		0.963
0.015	42.553		0.963

* 15% saturated at 62 DN

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 21-25

GAIN = 1 . OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.200	*61.428		0.521
0.170	54.599		0.523
0.155	52.218		0.548
0.090	37.151		0.591
0.030	23.589		0.527

* 43% saturated at 62 DN

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 16-20

GAIN = 2 OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.48	*61.109		0.316
0.44	56.844		0.492
0.31	42.398		0.513
0.19	29.000		0.323
0.06	14.824		0.519

* 10% saturated at 62 DN

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D **FRAME** COUNT: FILES: 11-15

GAIN = 3 OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
1.00	59.049		0.240
0.87	52.000		0.0
0.62	38.118		0.325
0.37	24.090		0.287
0.12	10.301		0.459

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D **FRAME COUNT:** **FILES:** 6-10

GAIN = 4 **OFFSET =** 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
2.00	57.000		0.0
1.75	50.066		0.244
1.25	36.894		0.309
0.75	23.000		0.0
0.25	9.000		0.0

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 1-6

GAIN = 5 OFFSET = 1

PSA TEMP = -43°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
4.20	59.0		0.0
~~3.20~~ 3.50 TMPO	49.104		0.419
2.50	36.0		0.0
1.50	22.0		0.0
0.50	8.0		0.0

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 91-95

GAIN = 0 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.050	55.564		0.881
0.045	51.814		0.837
0.030	45.246		0.847
0.020	40.650		0.862
0.015	40.732		0.839

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 86-90

GAIN = 1 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.200	*60.508		0.612
0.170	53.102		0.599
0.155	50.681		0.615
0.090	36.418		0.594
0.030	22.020		0.546

* 5% saturated at 62 DN

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 81-85

GAIN = 2 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.48	*61.294		0.463
0.44	57.260		0.452
0.31	42.559		0.541
0.19	29.191		0.400
0.06	14.418		0.515

* 29% saturated at 62 DN

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 76-80

GAIN = 3 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
1.00	59.397		0.519
0.87	52.004		0.075
0.62	38.344		0.476
0.37	24.070		0.256
0.12	10.468		0.499

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D FRAME COUNT: FILES: 71-75

GAIN = 4 OFFSET = 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
2.00	57.027		0.203
1.75	50.576		0.496
1.25	36.602		0.490
0.75	23.000		0.0
0.25	9.000		0.0

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK237D   FRAME COUNT: FILES: 66-70

GAIN = 5   OFFSET = 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
4.20	59.0		0.0
3.50	49.026		0.221
2.50	36.0		0.047
1.50	22.0		0.0
0.50	8.0		0.0

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK238D   FRAME COUNT: FILES: 26-30

GAIN = 0   OFFSET = 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.050	54.902		0.772
0.045	53.011		0.761
0.030	44.859		0.792
0.020	41.727		0.762
0.015	39.182		0.806

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK238D **FRAME COUNT:** **FILES:** 21-25

GAIN = 1 **OFFSET =** 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.200	60.362		0.499
0.170	53.602		0.508
0.155	50.344		0.492
0.090	35.602		0.501
0.030	22.182		0.445

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK238D **FRAME COUNT:** **FILES:** 16-20

GAIN = 2 **OFFSET =** 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
0.48	60.998		0.058
0.44	56.921		0.275
0.31	42.011		0.111
0.19	29.004		0.083
0.06	14.034		0.183

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK238D   FRAME COUNT: FILES: 11-15

GAIN = 3   OFFSET = 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
1.00	59.187		0.411
0.87	52.000		0.000
0.62	38.040		0.200
0.37	24.000		0.000
0.12	10.381		0.486

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK238D   **FRAME COUNT:**   **FILES:** 6-10

GAIN = 4   **OFFSET =** 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
2.00	57.06		0.145
1.75	50.160		0.370
1.25	36.907		0.292
0.75	23.000		0.000
0.25	9.000		0.000

FC-1B THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK238D   FRAME COUNT: FILES: 1-5

GAIN = 5   OFFSET = 1

PSA TEMP = +8°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA
4.20	59.0		0.0
3.50	49.0		0.0
2.50	35.0		0.0
1.50	21.287		0.615
0.50	7.999		0.034

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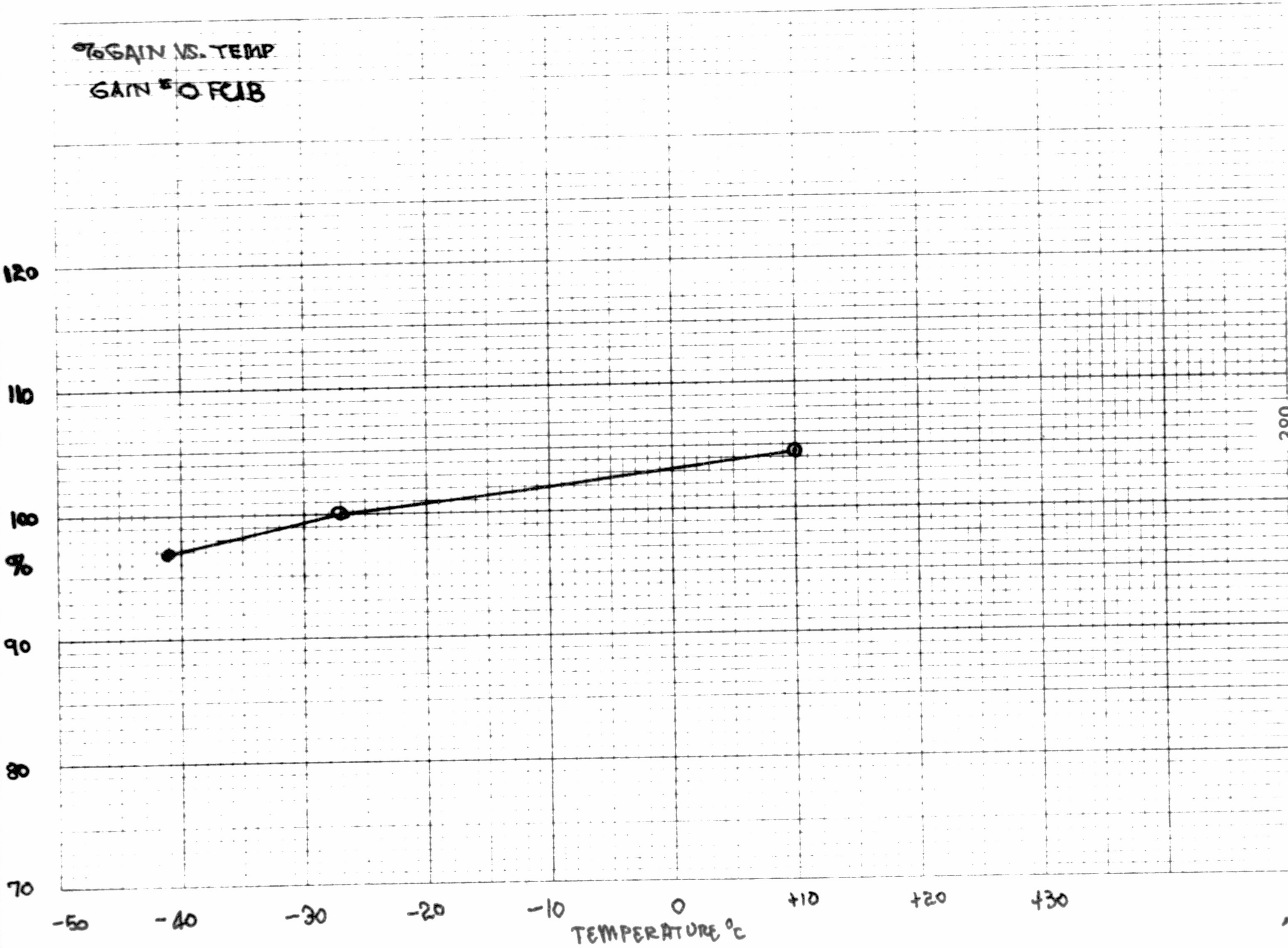

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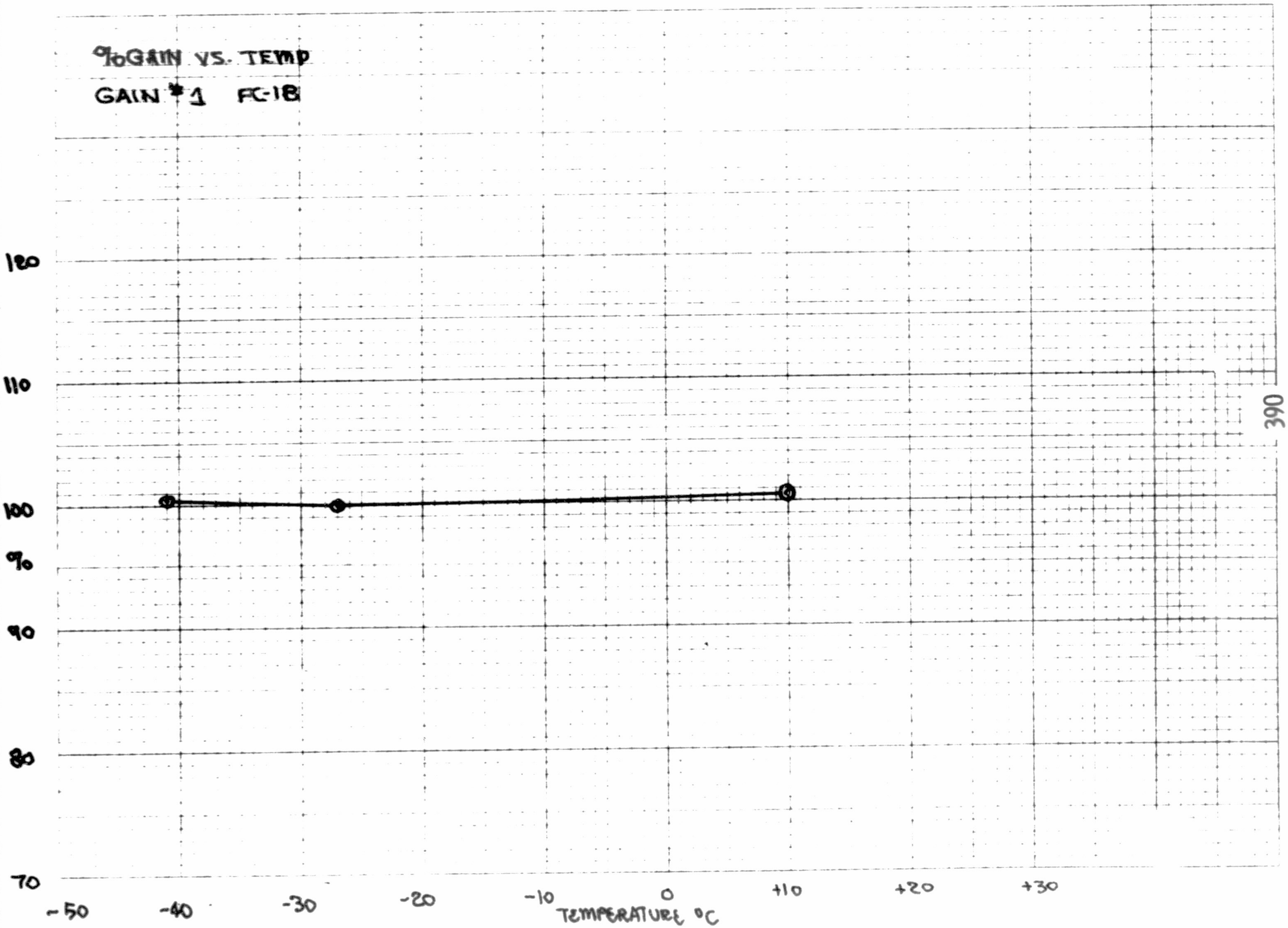

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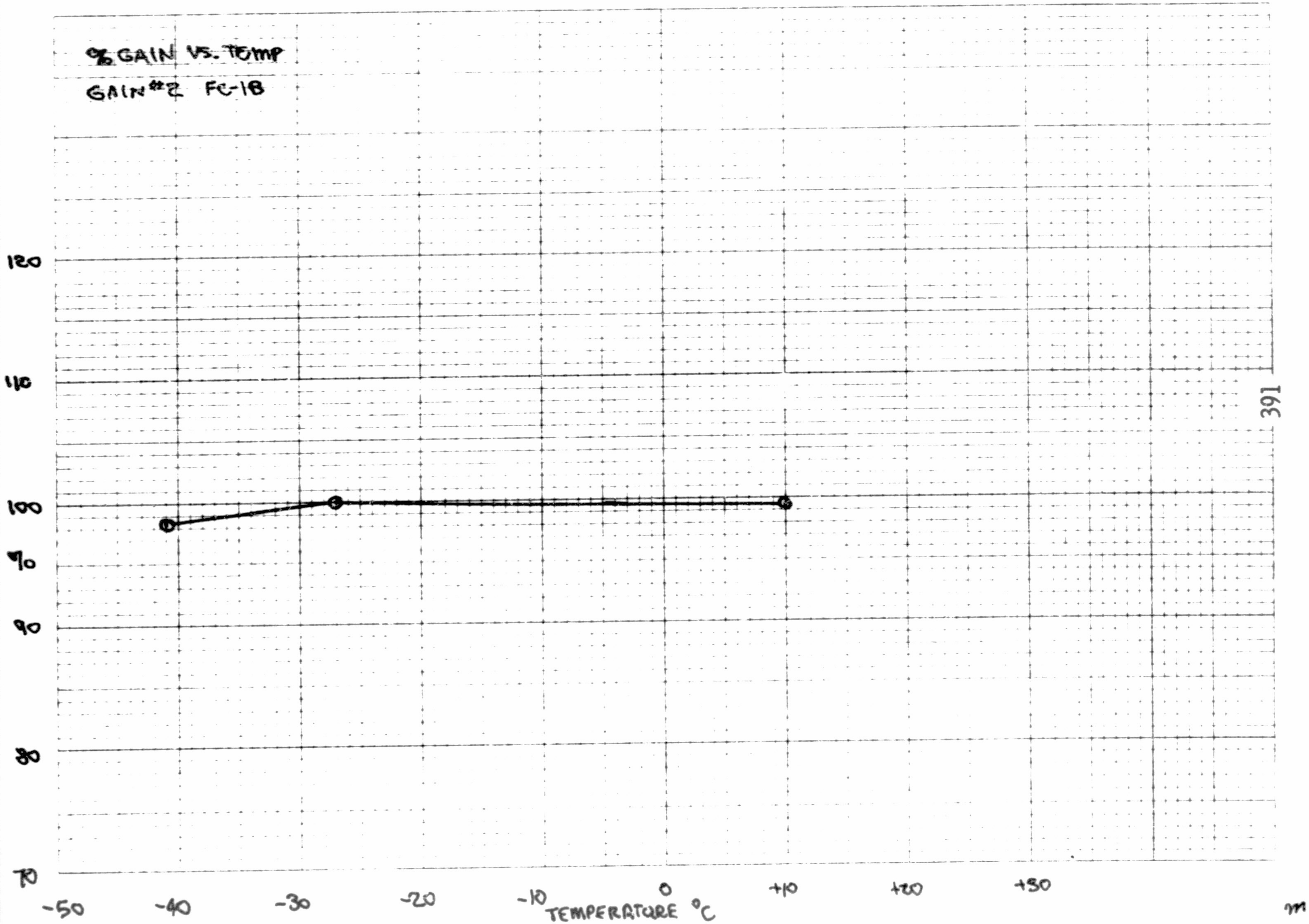

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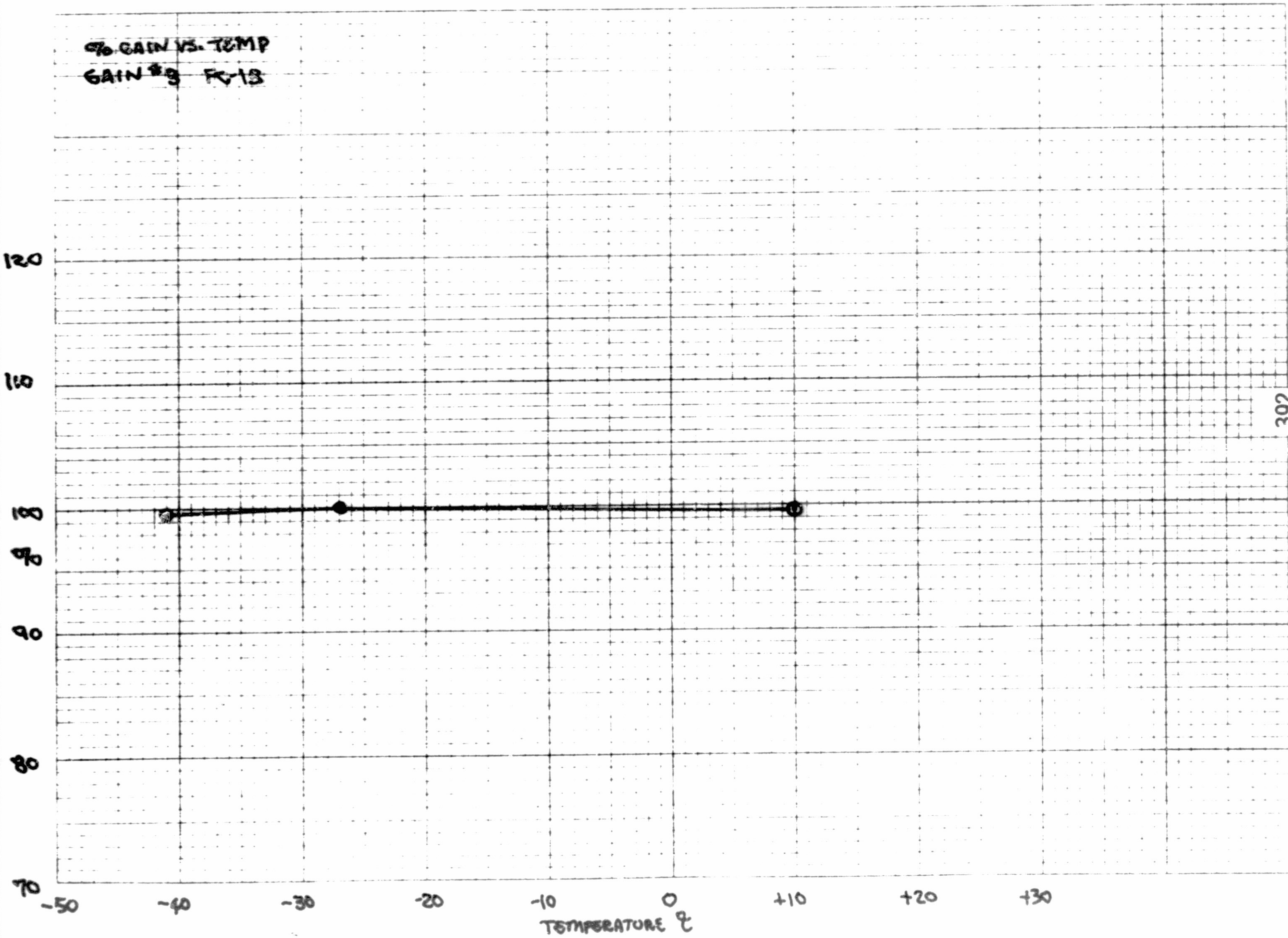

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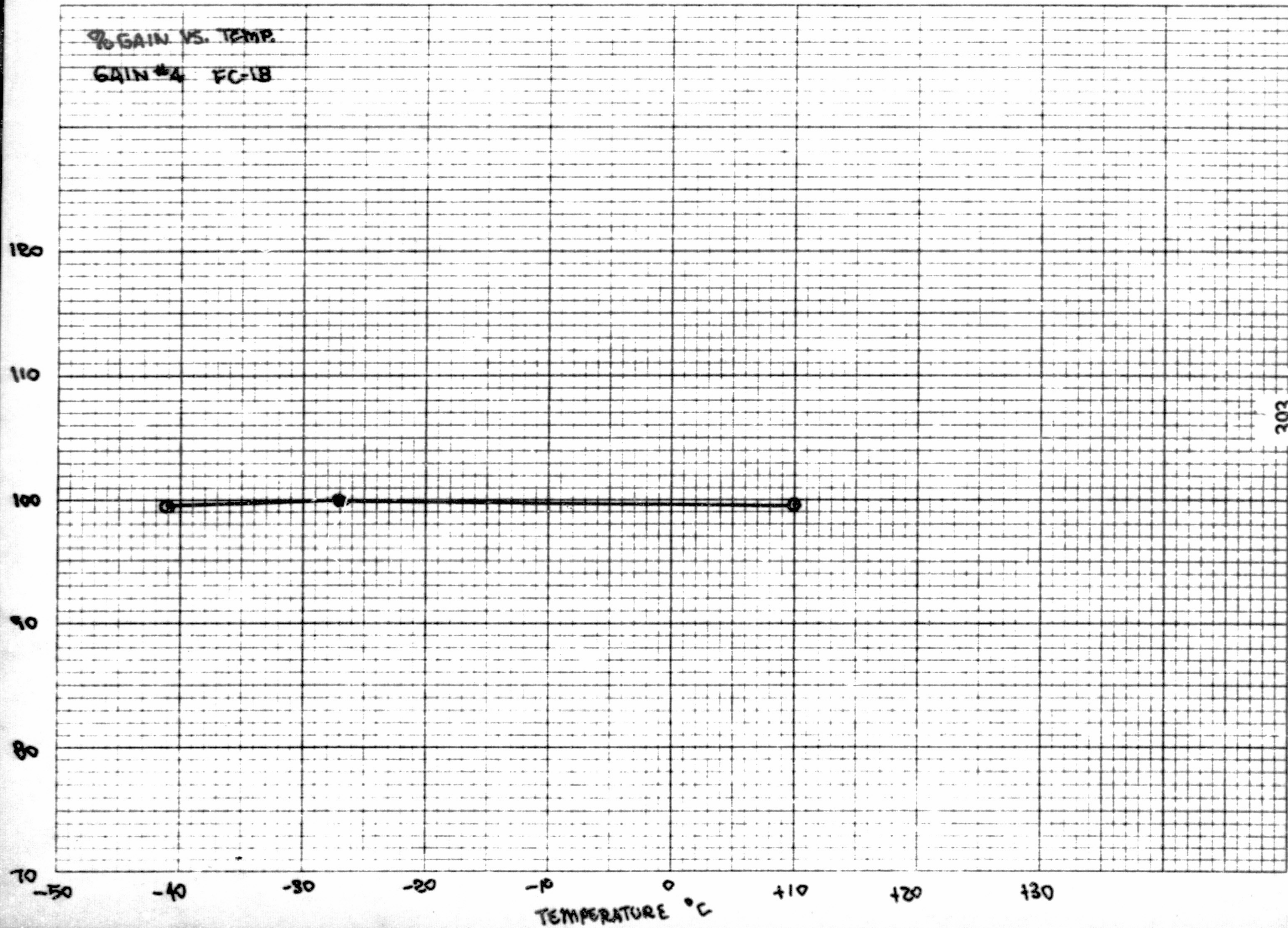

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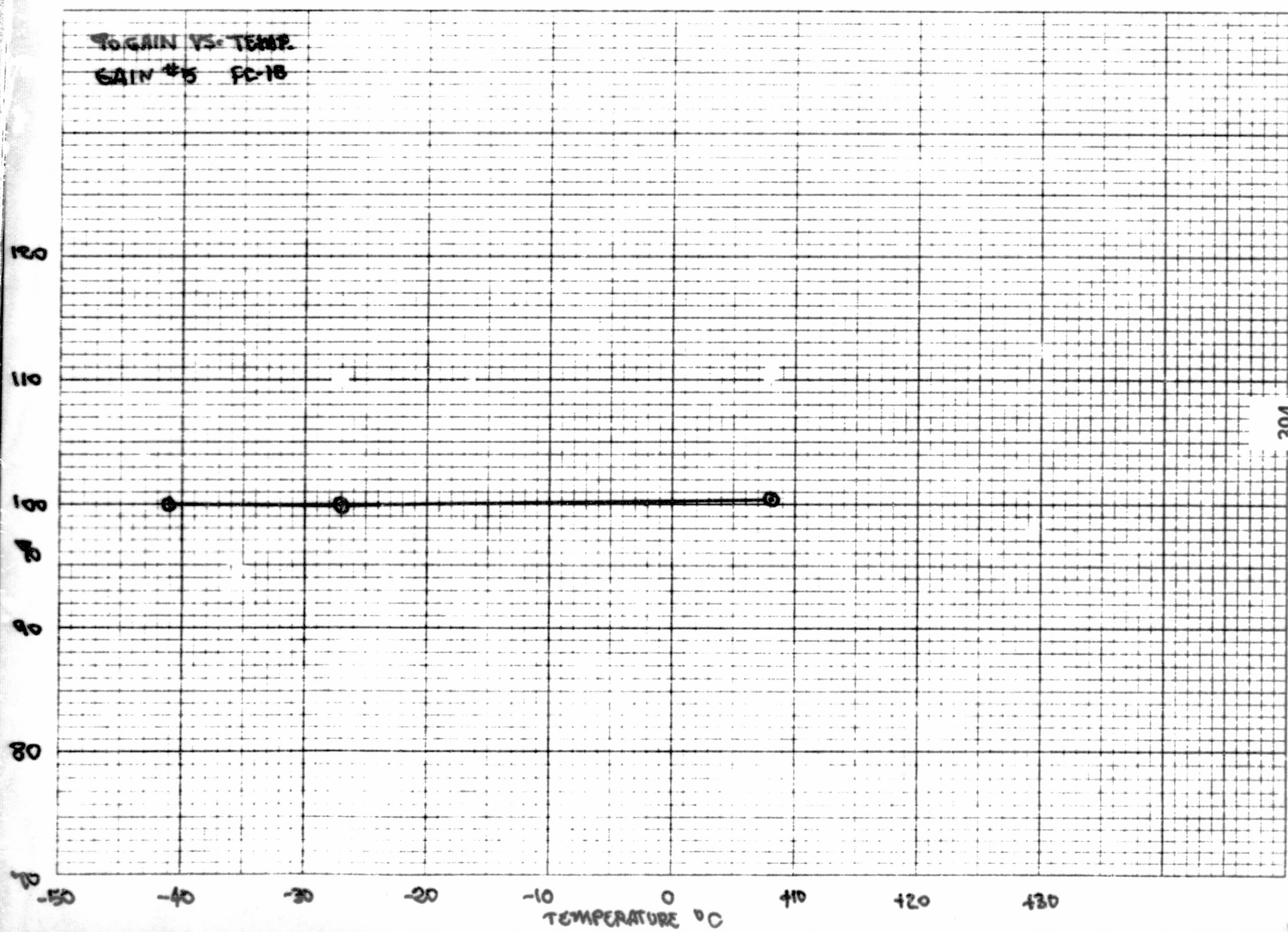

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FC-1B THERMAL CAL TEST

Gain as a function of temperature

Gain Setting	Gain/Temp	Gain/Temp	Gain/Temp
0	452.870261/+10°C	433.331787/-27°C	419.773682/-41°C
1	224.776306/+10°C	223.400360/-27°C	224.349548/-41°C
2	111.911591/+10°C	112.620056/-27°C	110.675858/-41°C
3	55.577942/+10°C	55.647614/-27°C	55.507950/-41°C
4	27.388290/+10°C	27.496718/-29°C	27.356552/-41°C
5	13.790790/+8°C	13.724940/-29°C	13.734254/-43°C

FC-1B THERMAL CAL TEST

Gain Percent as a function of Temperature

Gain at "Middle" Temperature = 100%

Gain Setting	%/Temp	%/Temp	%/Temp
0	104.50892/+10°C	100.0/-27°C	96.87120/-41°C
1	100.61591/+10°C	100.0/-27°C	100.42488/-41°C
2	99.37092/+10°C	100.0/-27°C	98.273667/-41°C
3	99.87480/+10°C	100.0/-27°C	99.74902/-41°C
4	99.60567/+10°C	100.0/-27°C	99.49024/-41°C
5	100.47978/+8°C	100.0/-27°C	100.06786/-43°C

III-C

SPARE CAMERA

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 7/17/74

CALIBRATION RUN INTERNAL CAL., SPARE CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of CAL2 and CAL3 data for every diode at -39°C, -25°C and +14°C.

TEST DESCRIPTION Internal Calibrate Level 2 and Internal Calibrate Level 3 mode was selected for each diode at three temperatures.

DATA PROCESSING DESCRIPTION Mean DN and standard deviation were calculated for the last 100 samples of line three of each PDF.

?

ANALYST David L. Atwood

APPROVAL Michael R. Wolf

TABLE II

'SPARE' CAL. 2 & CAL. 3 DATA

VIK-196D PSA TEMP. = -25°C

CAL.	CHAN.	OFF	GAIN	$\overline{DN}$	SIGMA	F.C.
2	BB1	1	1	35.~~010~~ .030	1.196	103
3	BB1	1	2	40.650	0.639	104
2	BB2	1	1	35.~~640~~ .650	1.~~100~~ .090	105
3	BB2	1	2	41.~~300~~ .310	0.~~594~~ .596	106
2	BB3	1	1	35.210 .200	1.~~219~~ .217	107
3	BB3	1	2	40.~~100~~ .090	0.~~641~~ .650	108
2	BB4	1	1	35.~~920~~ .930	1.~~046~~ .042	109
3	BB4	1	2	40.~~720~~ .710	0.~~619~~ .622	110
2	BLUE	1	0	43.~~970~~ .920	3.~~035~~ .107	111
3	BLUE	1	1	43.350	1.445	112
2	GREEN	1	0	43.500	2.670	113
3	GREEN	1	1	42.950	1.284	114
2	RED	1	1	35.~~310~~ .320	0.~~703~~ .706	115
3	RED	1	2	43.930	0.357	116
2	IR1	1	1	33.~~030~~ .040	0.~~954~~ .969	117
3	IR1	1	2	33.~~260~~ .250	0.~~577~~ .572	118
2	IR2	1	1	→ 29.~~210~~ .200	1.~~410~~ .421	119
3	IR2	1	2	20.850	0.684	120
2	IR3	1	0	53.~~820~~ .830	2.133	121
3	IR3	1	1	45.~~390~~ .350	1.~~012~~ .025	122
2	SURVEY	1	1	34.~~380~~ .400	0.~~563~~ .548	123
3	SURVEY	1	2	39.000	0.0	124

TABLE I

'SPARE' CAL. 2 & CAL. 3 DATA

TAPE VIK-196D PSA TEMP. = -39°C

CAL.	CHAN.	OFF	GAIN	$\overline{DN}$	SIGMA	F.C.
2	BB1	1	1	31.990	1.245	103
3	BB1	1	2	40.~~790~~ .800	0.~~638~~ .644	104
2	BB2	1	1	31.410 ~~31.4[illegible]0~~	~~1.125~~ 1.133	105
3	BB2	1	2	40.~~470~~ .470	0.641 0	106
2	BB3	1	1	30.~~950~~ .990	1.~~381~~ .353	107
3	BB3	1	2	40.920	0.703	108
2	BB4	1	1	32.690	1.138	109
3	BB4	1	2	40.~~580~~ .590	0.~~570~~ .568	110
2	BLUE	1	0	50.~~310~~ .270	2.~~513~~ .470	111
3	BLUE	1	1	→ 28.~~880~~ .890	1.~~424~~ .414	112
2	GREEN	1	0	43.~~050~~ .150	~~3.005~~ 3.100	113
3	GREEN	1	1	41.~~590~~ .610	1.~~471~~ .463	114
2	RED	1	1	31.~~970~~ .990	0.900	115
3	RED	1	2	43.970	0.334	116
2	IR1	1	1	30.620	1.037	117
3	IR1	1	2	32.~~480~~ .490	0.539	118
2	IR2	1	1	→ 23.~~100~~ .080	1.~~[illegible]88~~ .324	119
3	IR2	1	2	20.950	0.639	120
2	IR3	1	0	50.~~000~~ .030	2.~~010~~ .018	121
3	IR3	1	1	43.~~010~~ .040	1.~~016~~ .059	122
2	SURVEY	1	1	31.~~170~~ .180	0.~~601~~ .590	123
3	SURVEY	1	2	39.000	0.00	124

TABLE III

'SPARE' CAL. 2 & CAL. 3 DATA

VIK-197D — PSA TEMP. = +14°C

CAL.	CHAN.	OFF	GAIN	DN	SIGMA	F.C.
2	BB1	1	1	34.~~880~~ .870	0.~~963~~ .956	103
3	BB1	1	2	41.800	0.602	104
2	BB2	1	1	35.~~500~~ .490	0.~~954~~ .965	105
3	BB2	1	2	41.~~930~~ .920	0.~~555~~ .544	106
2	BB3	1	1	35.050	1.~~099~~ .095	107
3	BB3	1	2	41.880	0.639	108
2	BB4	1	1	35.~~760~~ .740	0.~~907~~ .924	109
3	BB4	1	2	42.~~400~~ .390	0.~~602~~ .583	110
2	BLUE	1	0	39.030	2.914	111
3	BLUE	1	1	31.~~770~~ .760	1.~~280~~ .290	112
2	GREEN	1	0	45.~~230~~ .270	2.~~396~~ .366	113
3	GREEN	1	1	41.880	1.244	114
2	RED	1	1	36.~~010~~ .020	0.~~671~~ .664	115
3	RED	1	2	44.170	0.428	116
2	IR1	1	1	32.610	0.927	117
3	IR1	1	2	34.400	0.584	118
2	IR2	1	1	→ 30.140	1.105	119
3	IR2	1	2	23.560	0.668	120
2	IR3	1	0	52.830	1.~~663~~ .676	121
3	IR3	1	1	48.710	1.090	122
2	SURVEY	1	1	34.650	0.498	123
3	SURVEY	1	2	40.260	0.~~439~~ .433	124

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RESULTS SUMMARY

1.) The purpose of the Internal Calibration test is to provide a baseline to check camera performance after Mars landing. The test requires a CAL2 and a CAL3 sequence for each diode at three temperatures.

2.) Since the lamp output is not stabilized until about the last half of line three, only the last 100 samples of line three were used for data analysis.

3.) Standard deviation on the Blue and Green channel is unusually high at gain 0, CAL2 for all temperatures.

4.) Suggestions:

Itek should try to get a better PSA Temperature spread than was achieved on this test.

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: July 2, 1974

CALIBRATION RUN SPARE CAMERA, GAIN TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Plots of DN vs. voltage input for all six gain settings and three temperatures and tables of the plotted values. Plots of gain percent vs. temperature. Results summary attached.

TEST DESCRIPTION Various voltages were input to the video amplifier directly via the test connector. 2.5° PDF's were generated at each of five voltage levels for all gain settings and three temperatures.

DATA PROCESSING DESCRIPTION Mean DN and standard deviation were calculated for the 30x30 pixel area (total = 900 pixels) starting at Line 80 and Sample 200. Linear least squares was used to determine the scope of DN vs. voltage relationshuo, 90 PDF's were processed.

ANALYST D. Atwood / M. Wolf
D. Atwood/M. Wolf

APPROVAL WBGreen
W. B. Green

RESULTS SUMMARY

There are no real surprises in the data with the possible exception of the large variation of Gain vs. Temperature for Gains 0 and 1. Gain 0 shows a variation of 11% between -27°C and either +16°C or -39°C. This behavior is quite different from the STC camera where the largest deviation was 3%. The shape of the Gain vs. Temperature graph is very similar for STC and SPARE (for a gain of 0), however. Apparently the camera does show a dip in gain at low temp, (-13°C -27°C) which recovers at very low temp (-40°C). It will be interesting to match data from other cameras, to see if this behavior is repeated.

The temperatures were not very well spaced, leading to a poor determination of temperature dependence. The high and middle temperatures were spaced by 43°C and the middle and low temperatures were different by only 12°C. Itek should strive to achieve a better spacing of temperatures.

Saturation was a problem on several frames. Saturation or partial saturation occurred on data at room temperature for Gains 1 and 2, and at middle temperature for Gains 0, 1, 2. The analog input should be decreased for the high points on these data runs. The following voltages are recommended for the "High Point" at the given temperature and gain:

TEMP	GAIN	OLD VOLTS	NEW VOLTS
Room	1	0.200	0.190
Room	2	0.480	0.470
Middle	0	[Eliminate top point, substitute new low point = 0.005 volts]	
Middle	1	[Eliminate top point, substitute new low point = 0.010 volts]	
Middle	2	[Eliminate top point, substitute new low point = 0.020 volts]	

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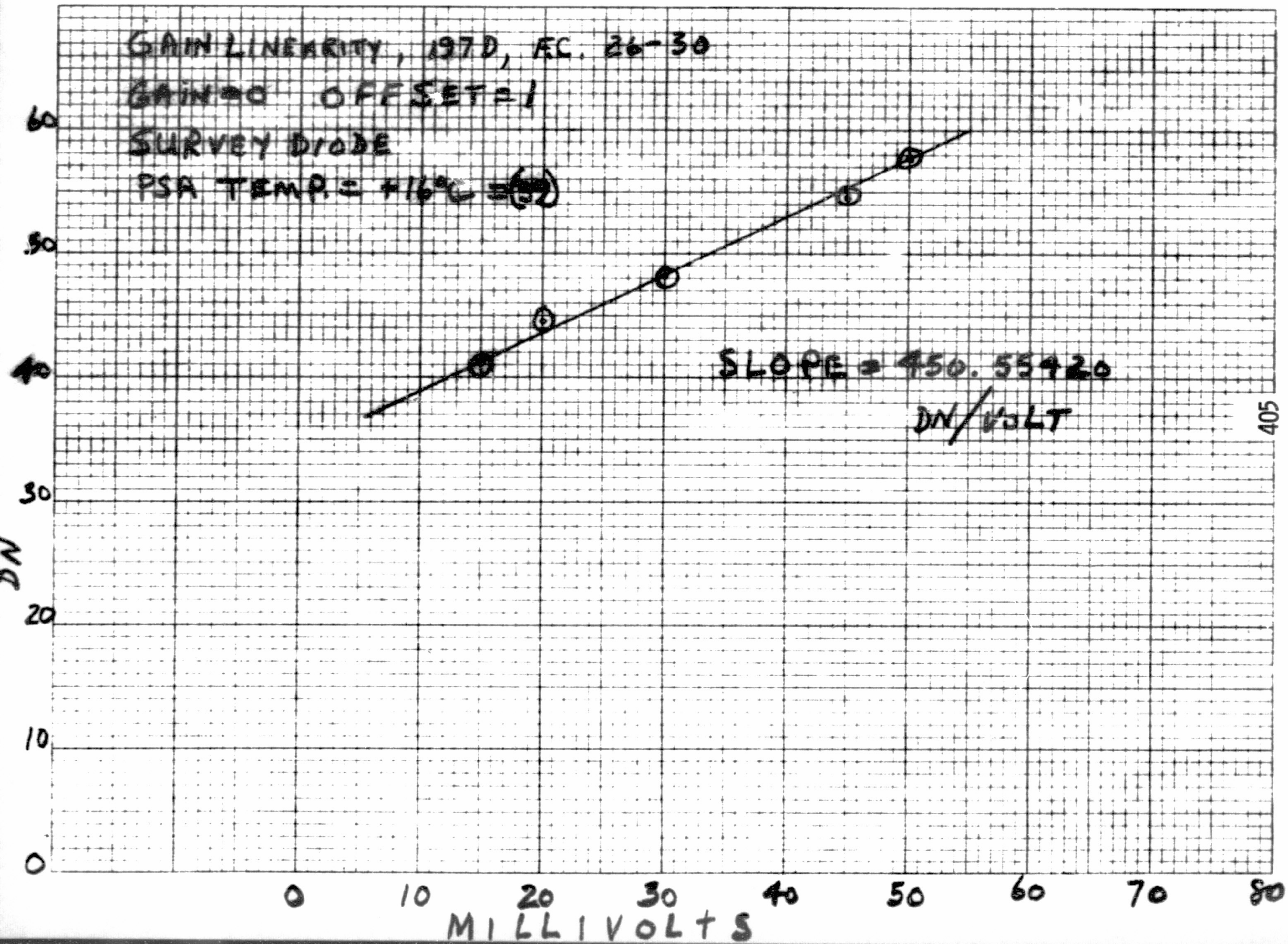

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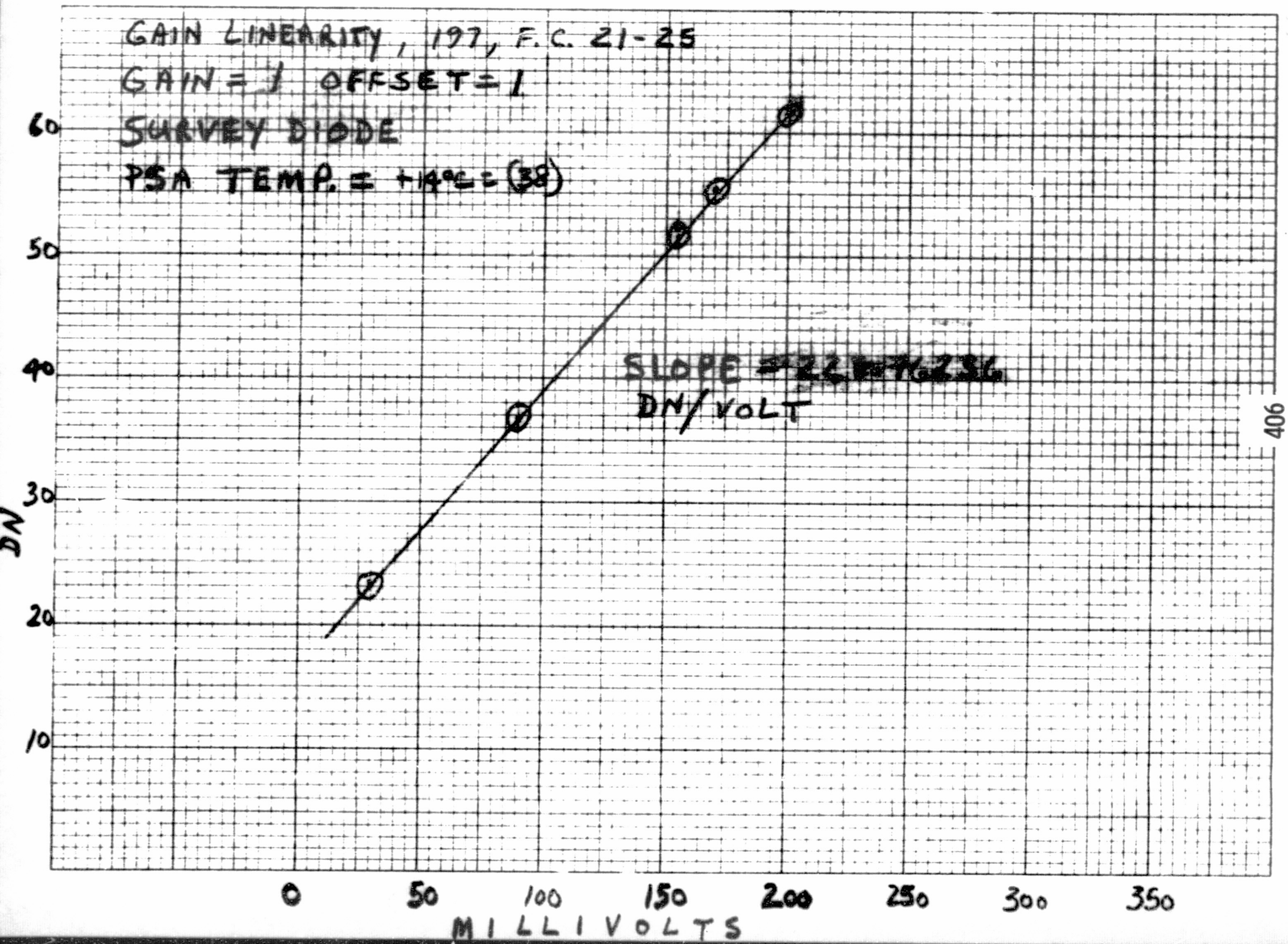

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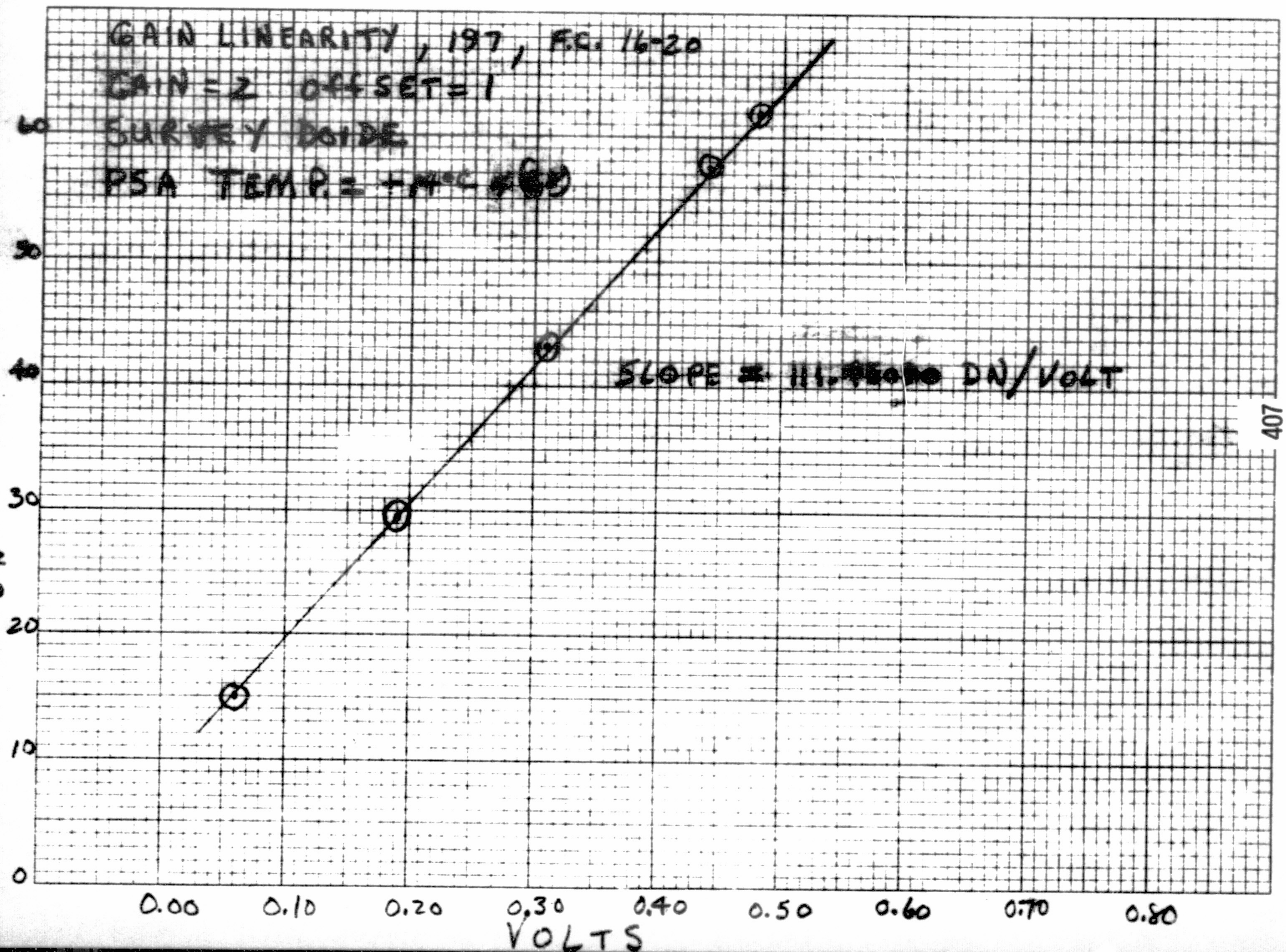

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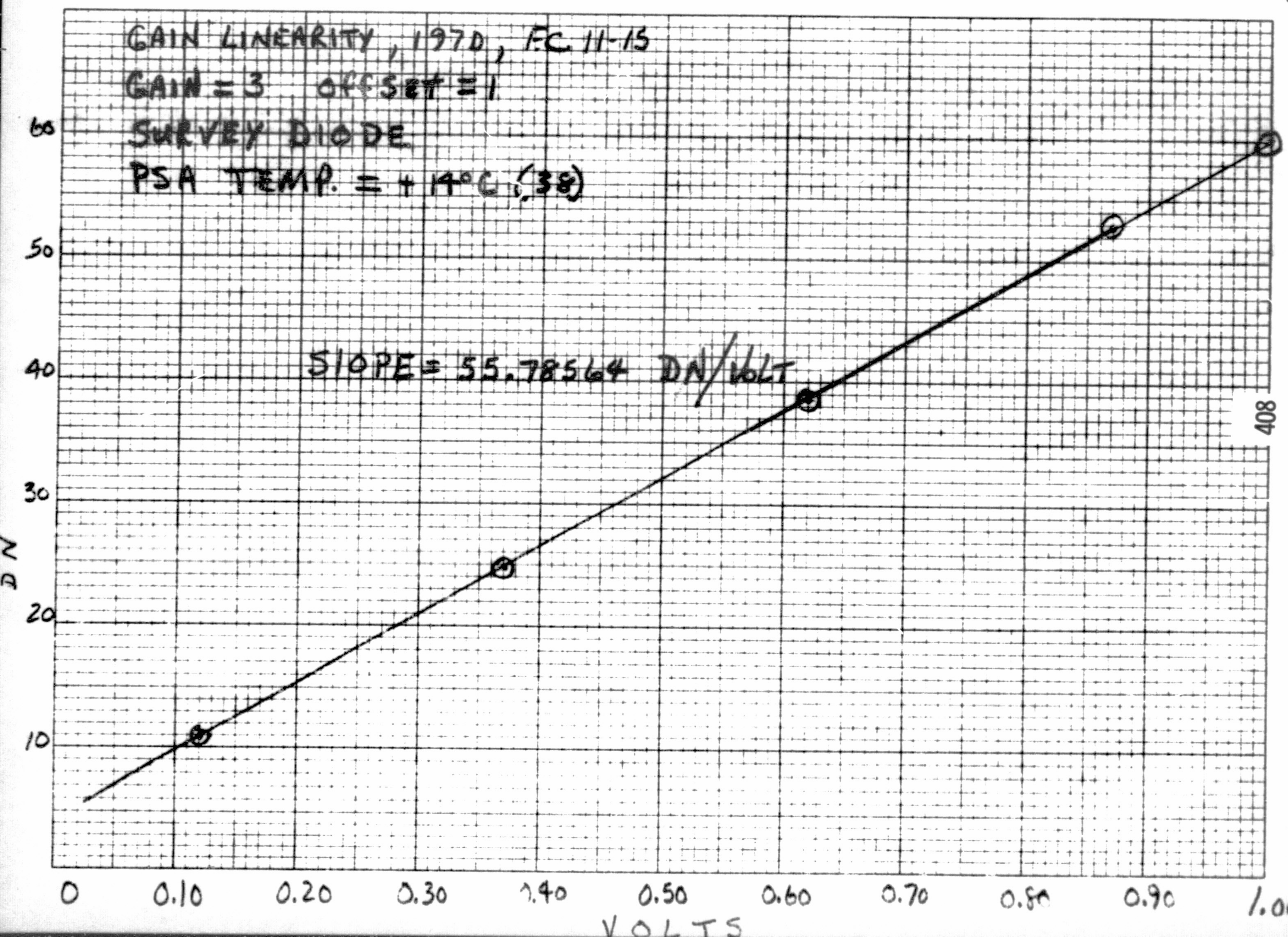

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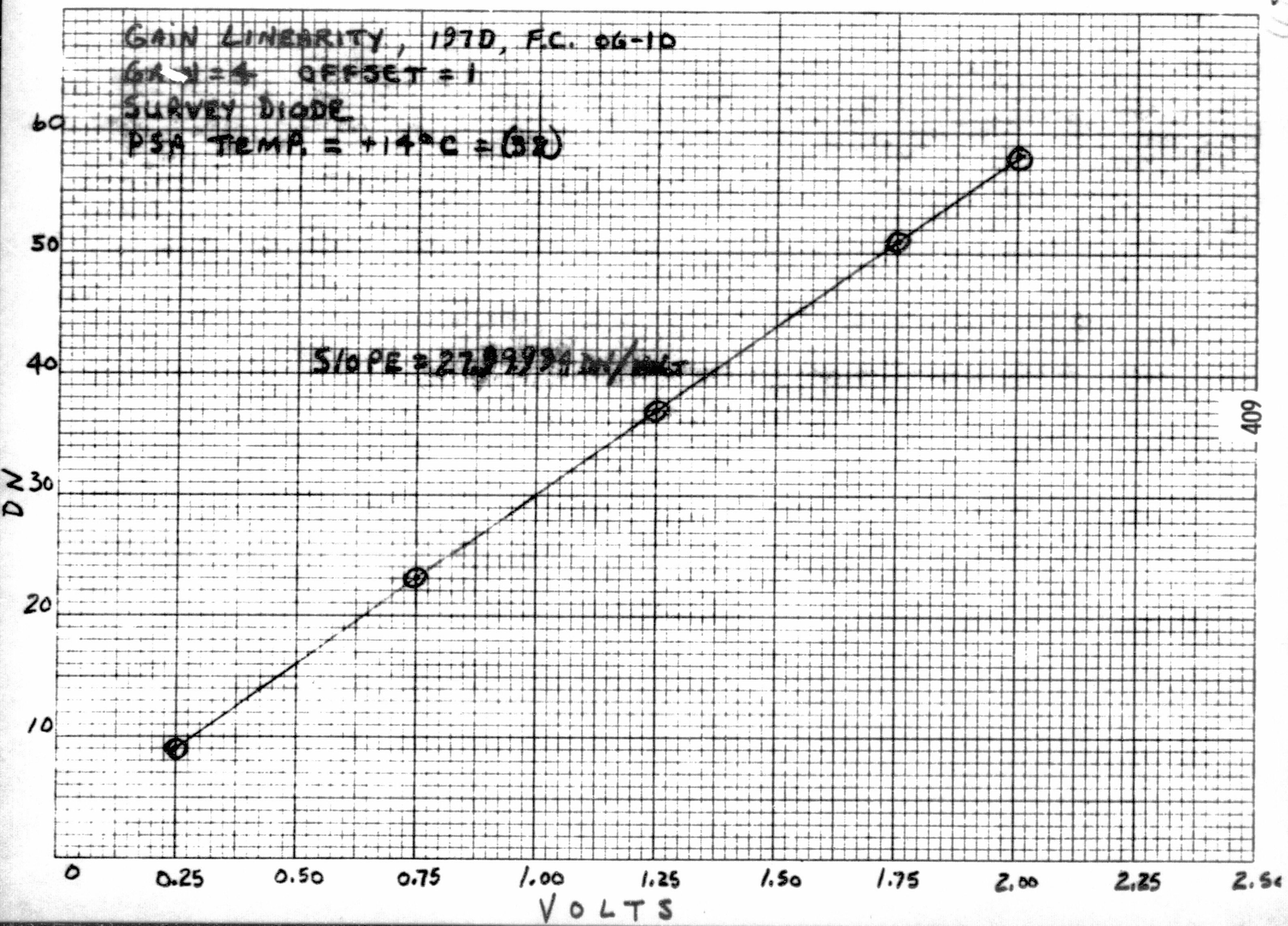

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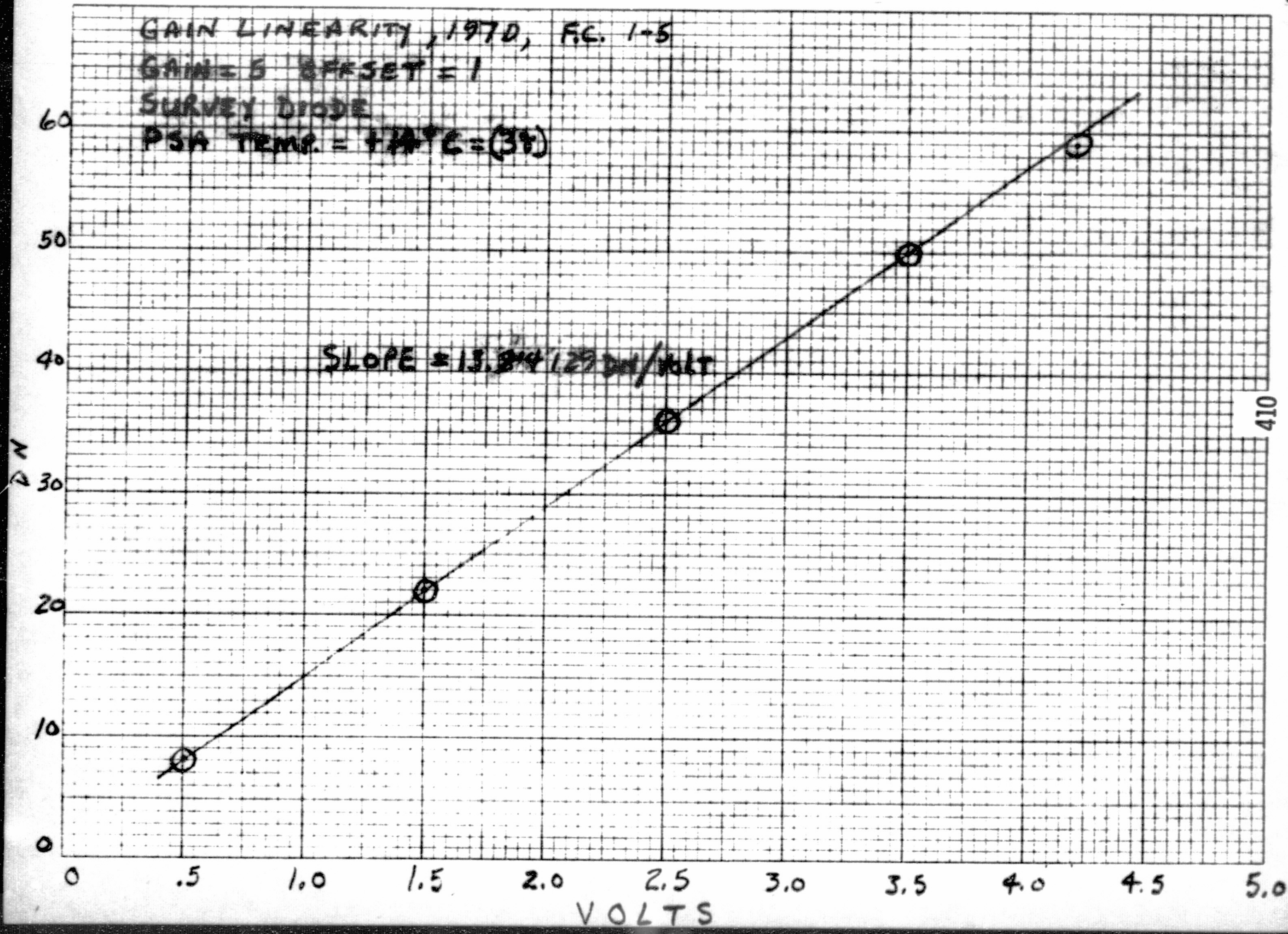

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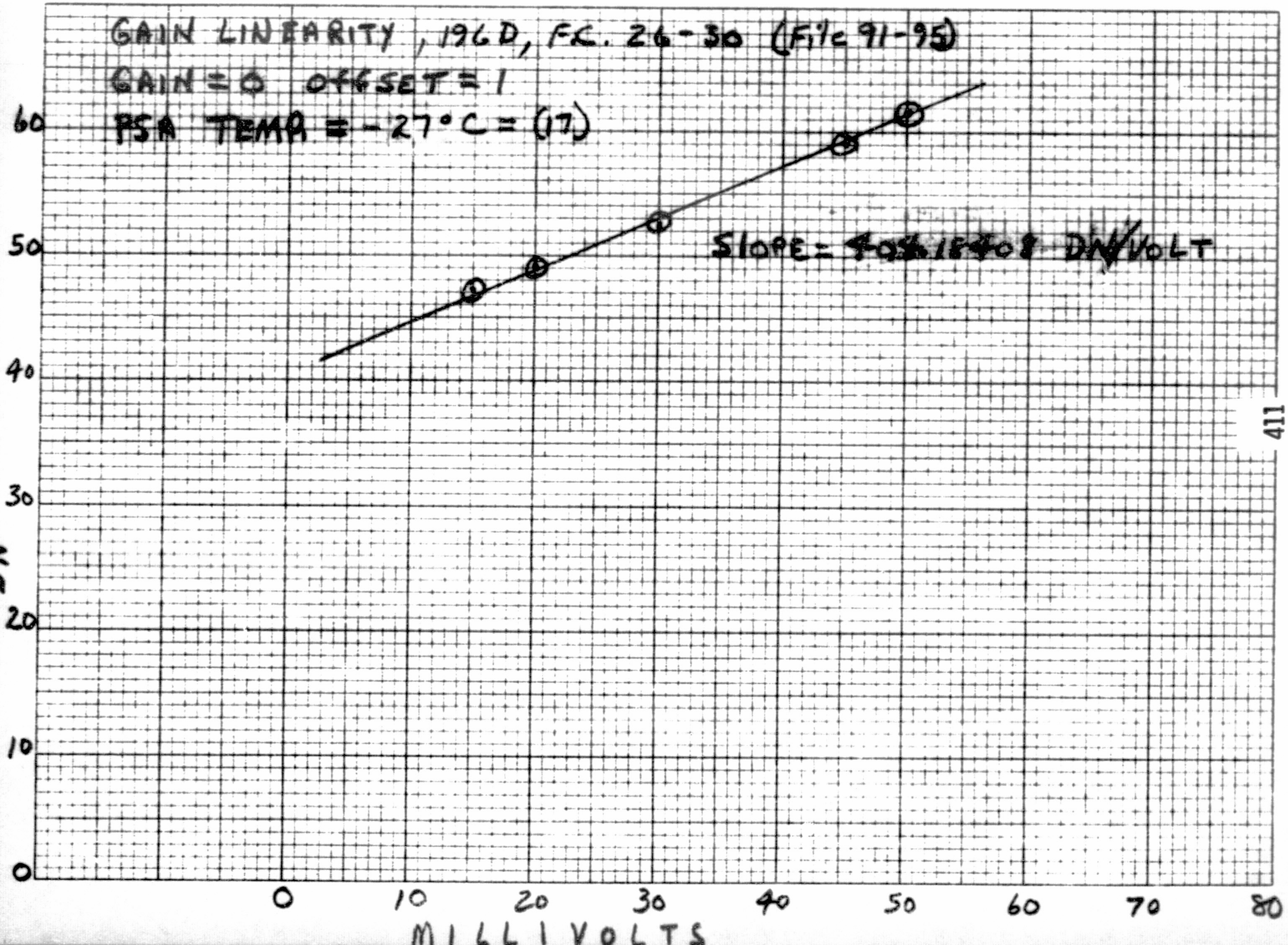

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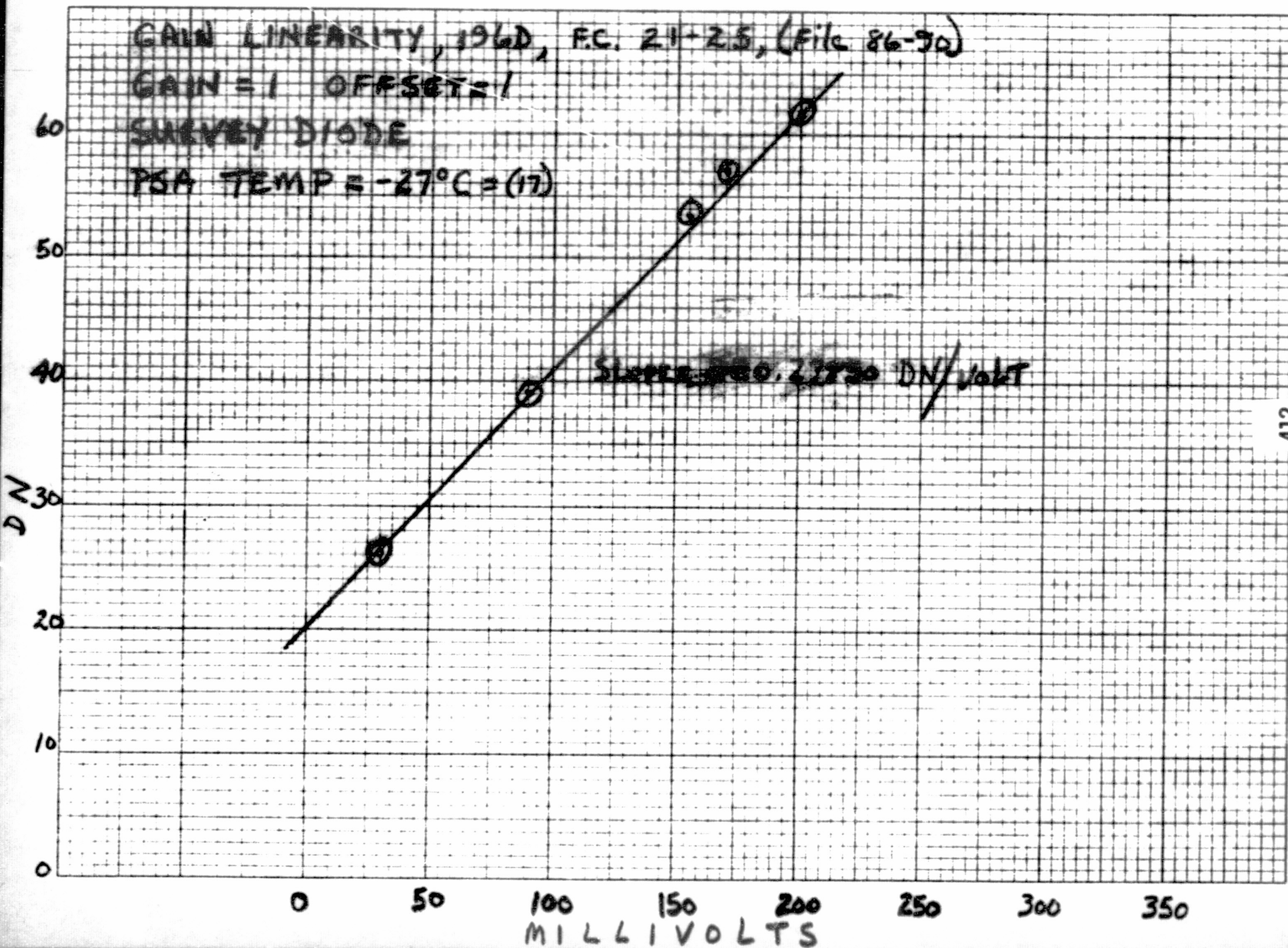

412

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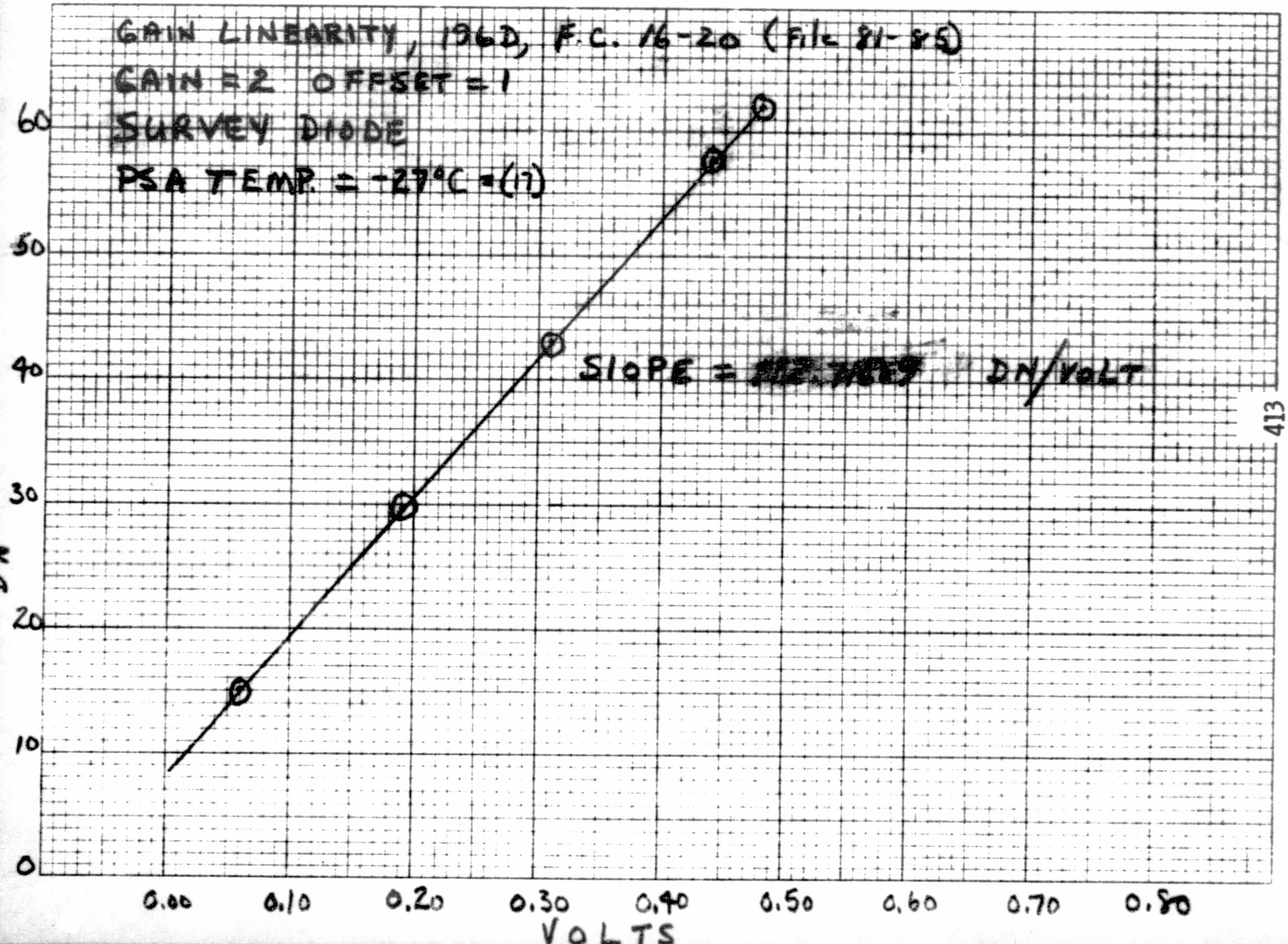

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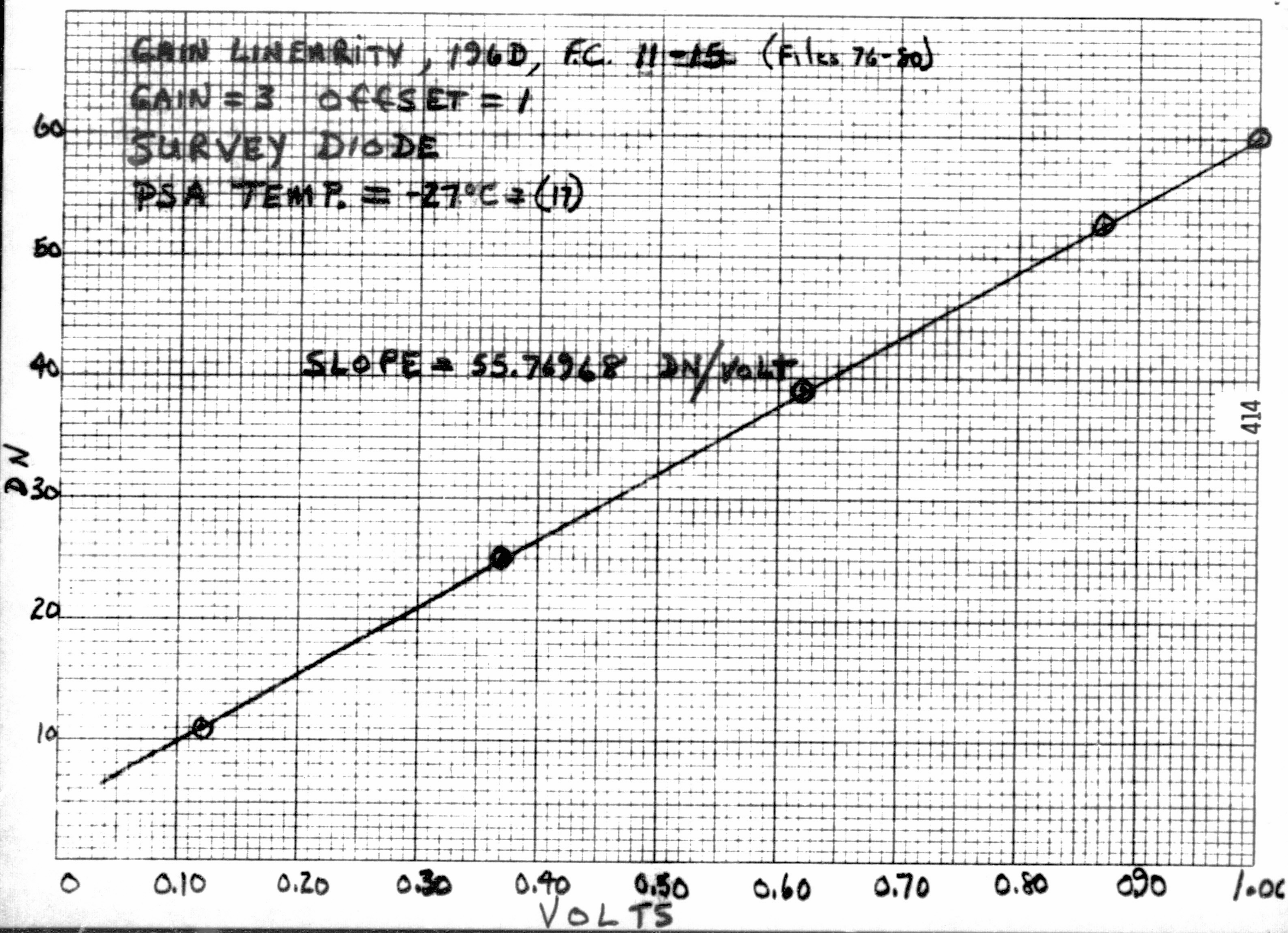

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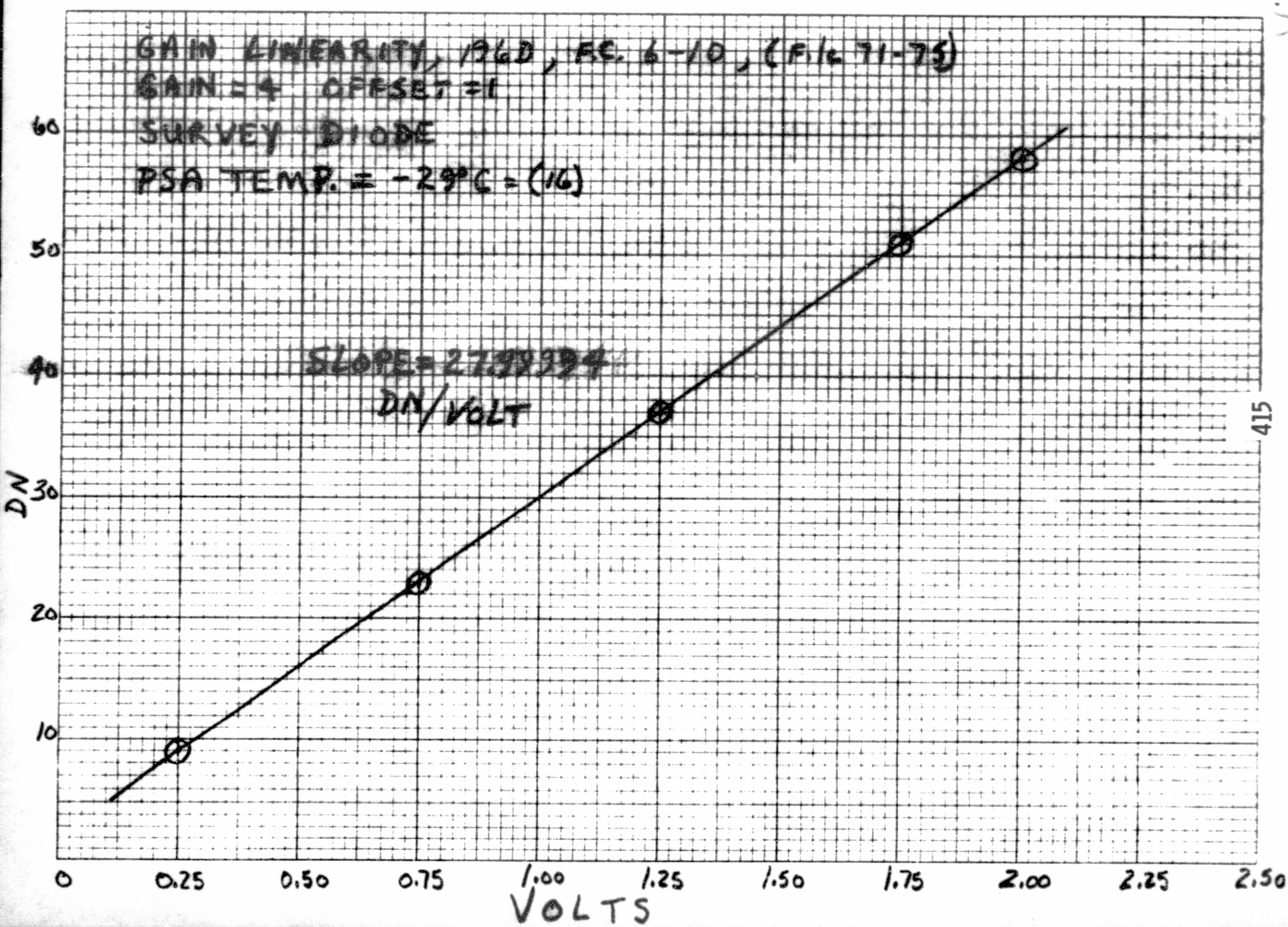

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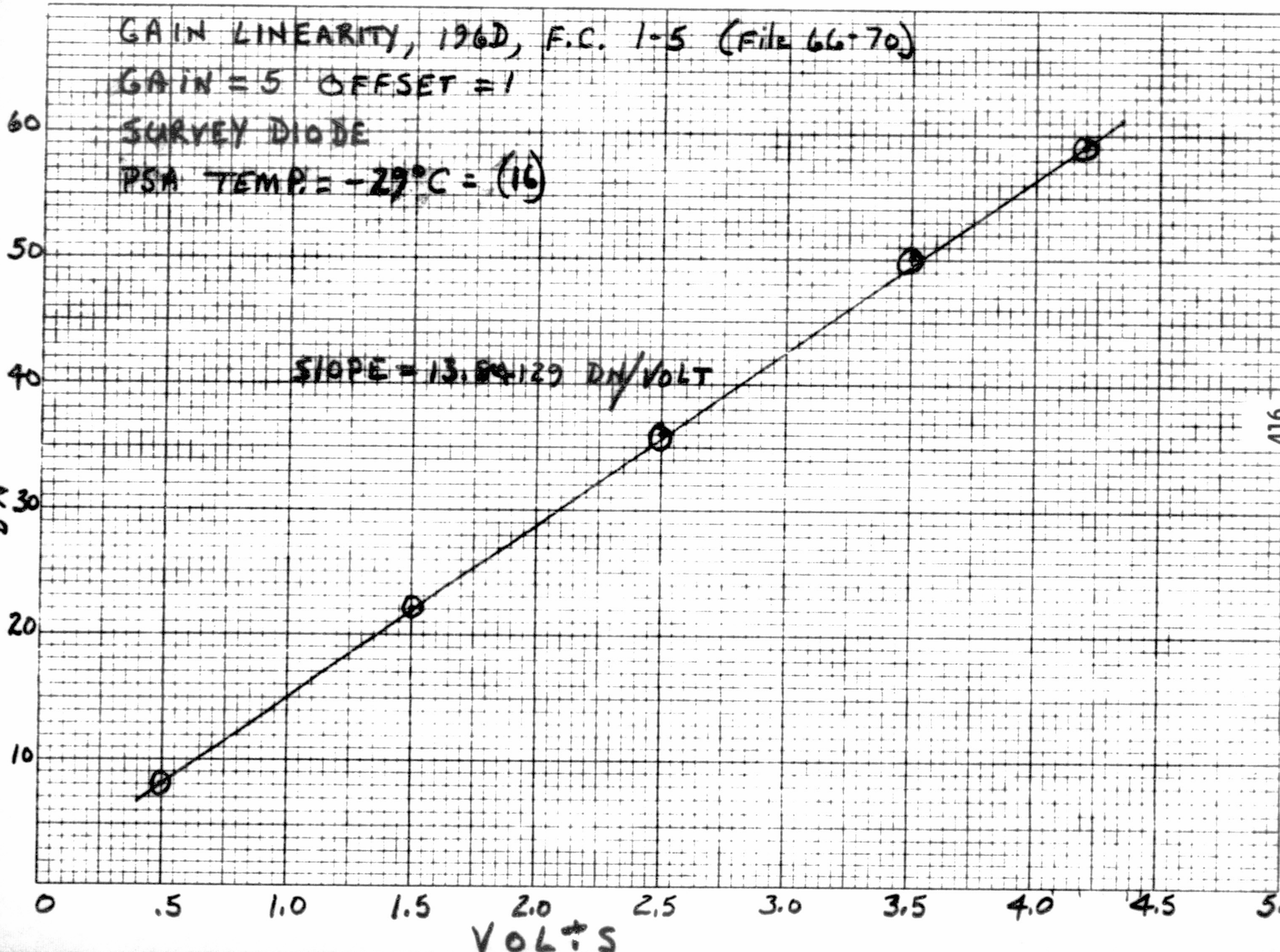

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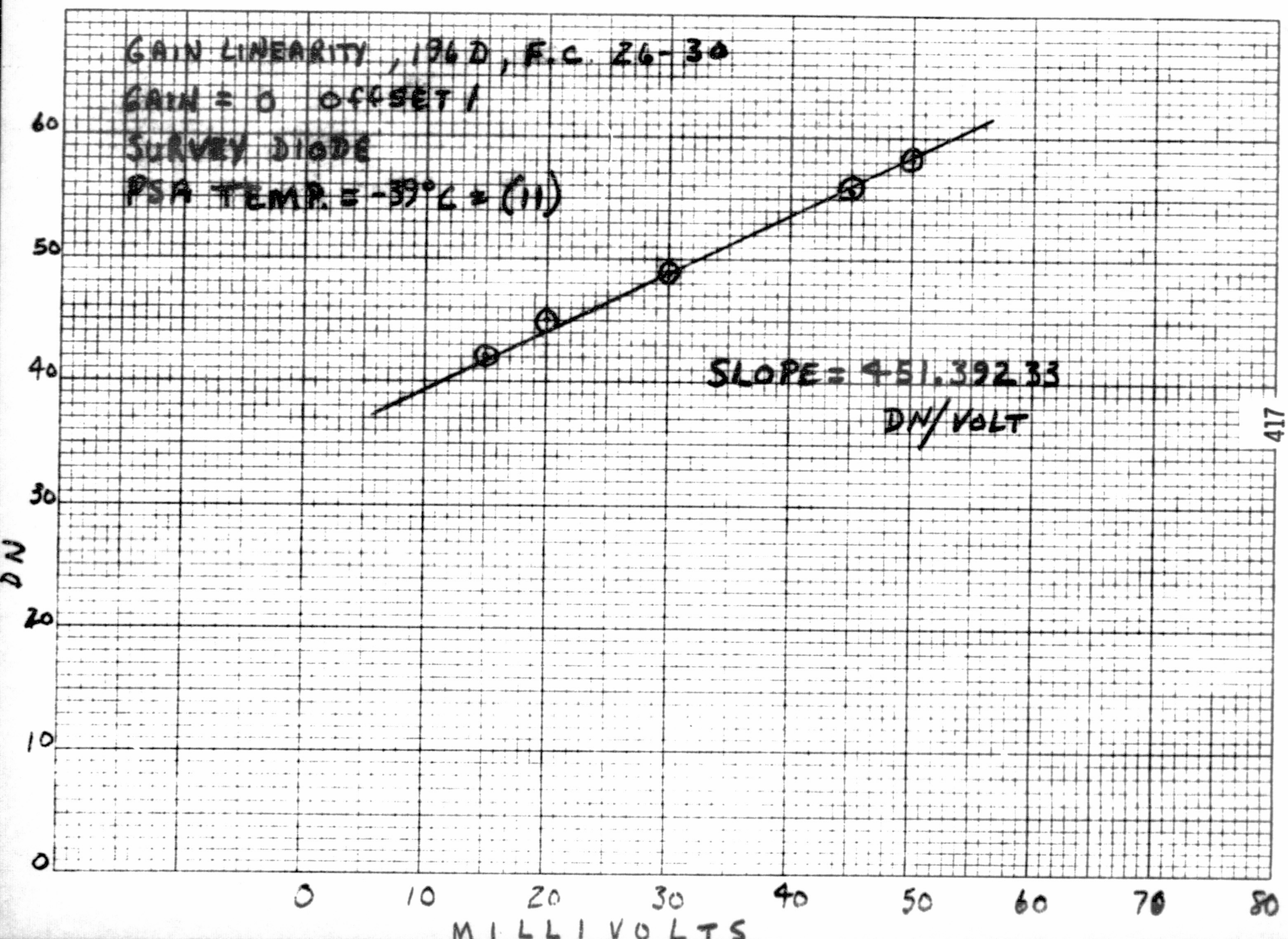

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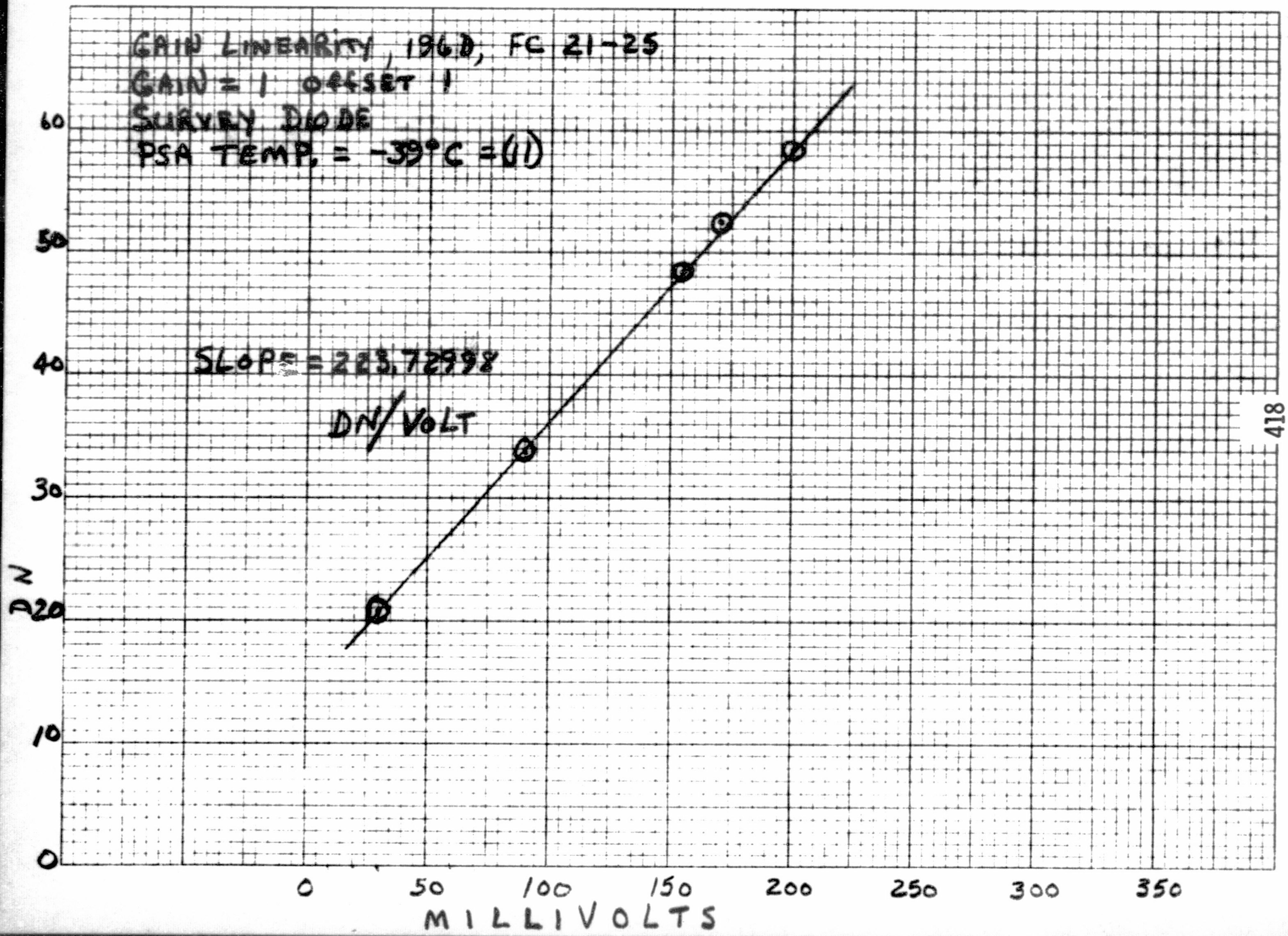

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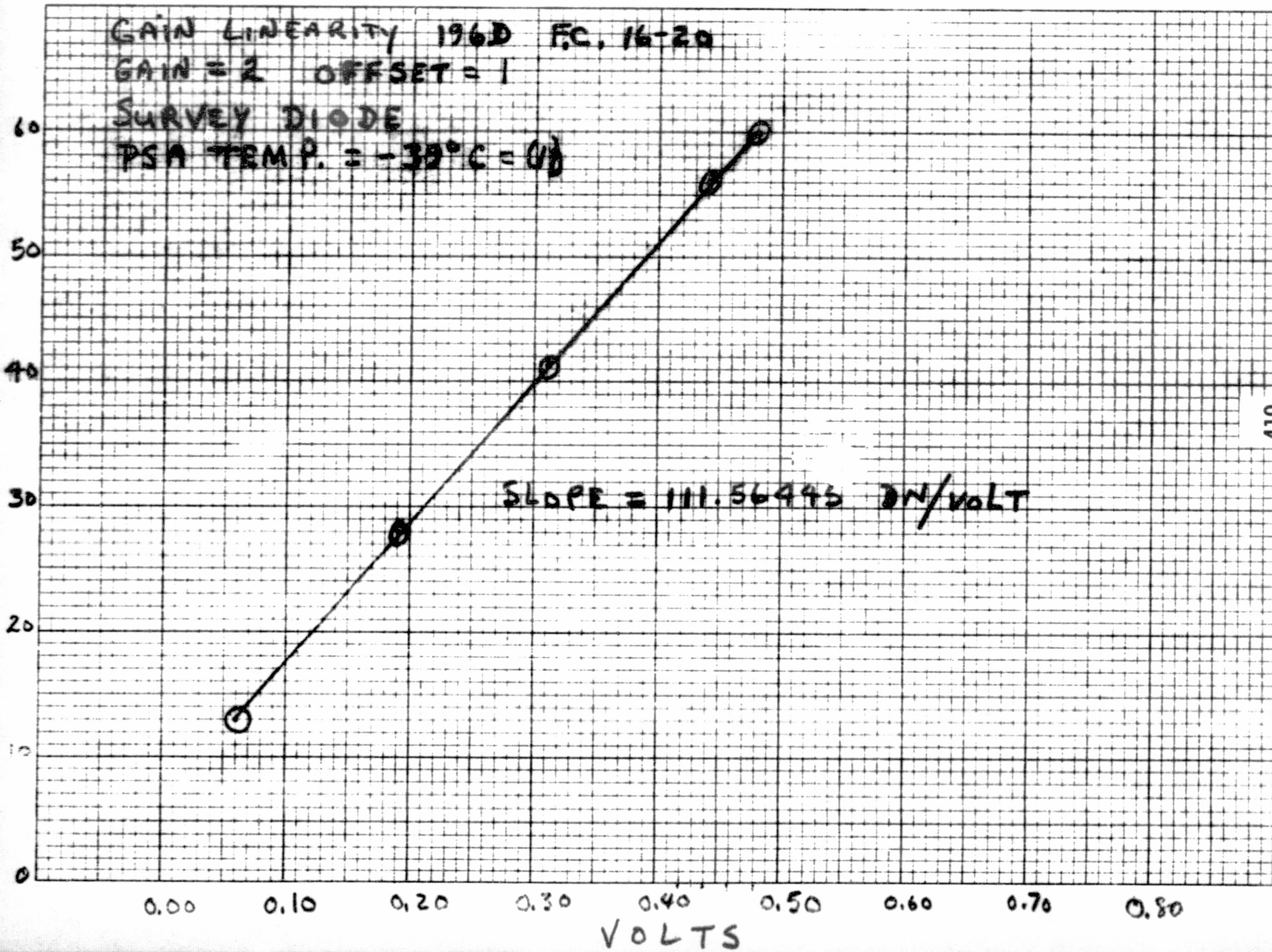

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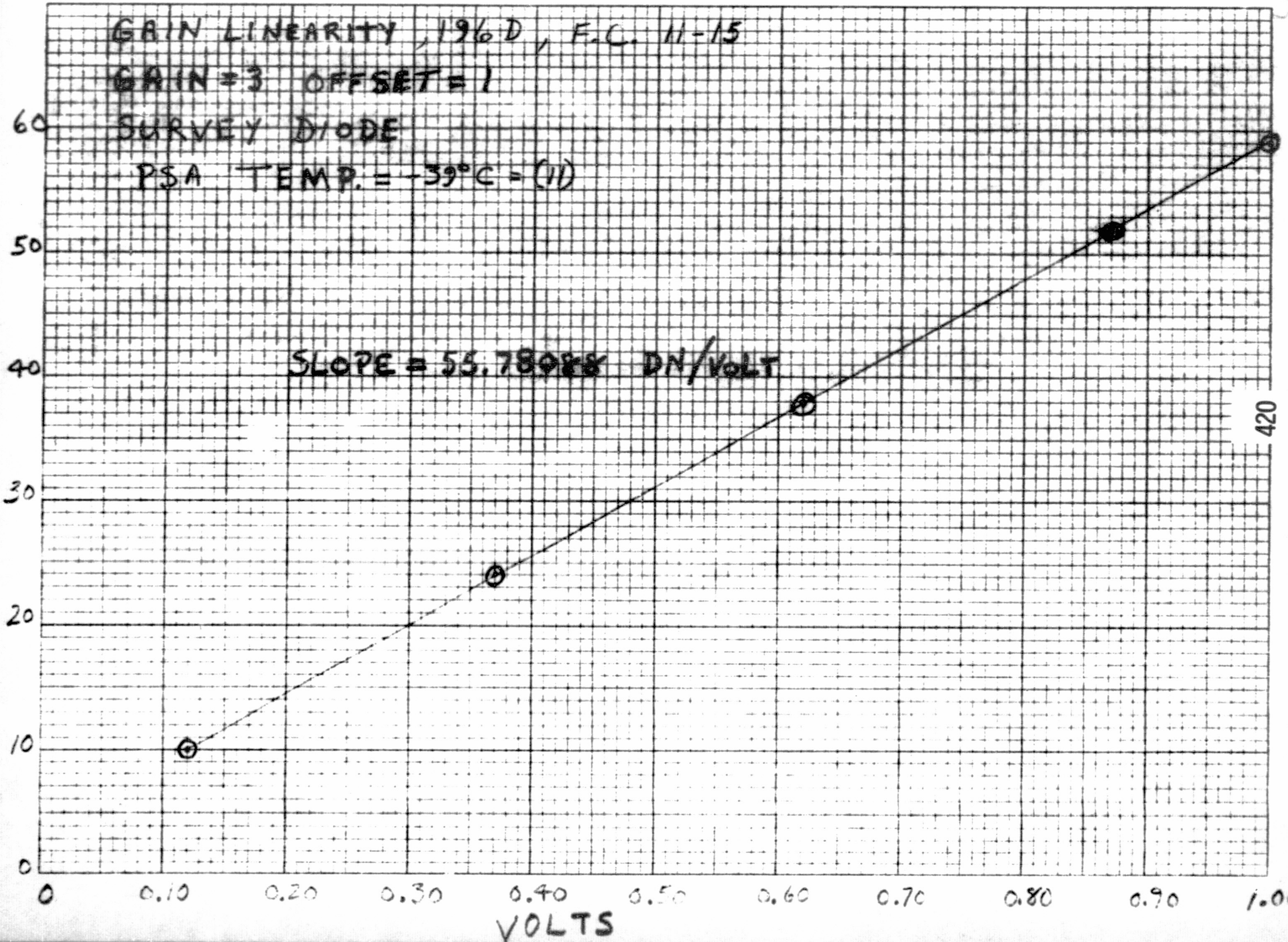

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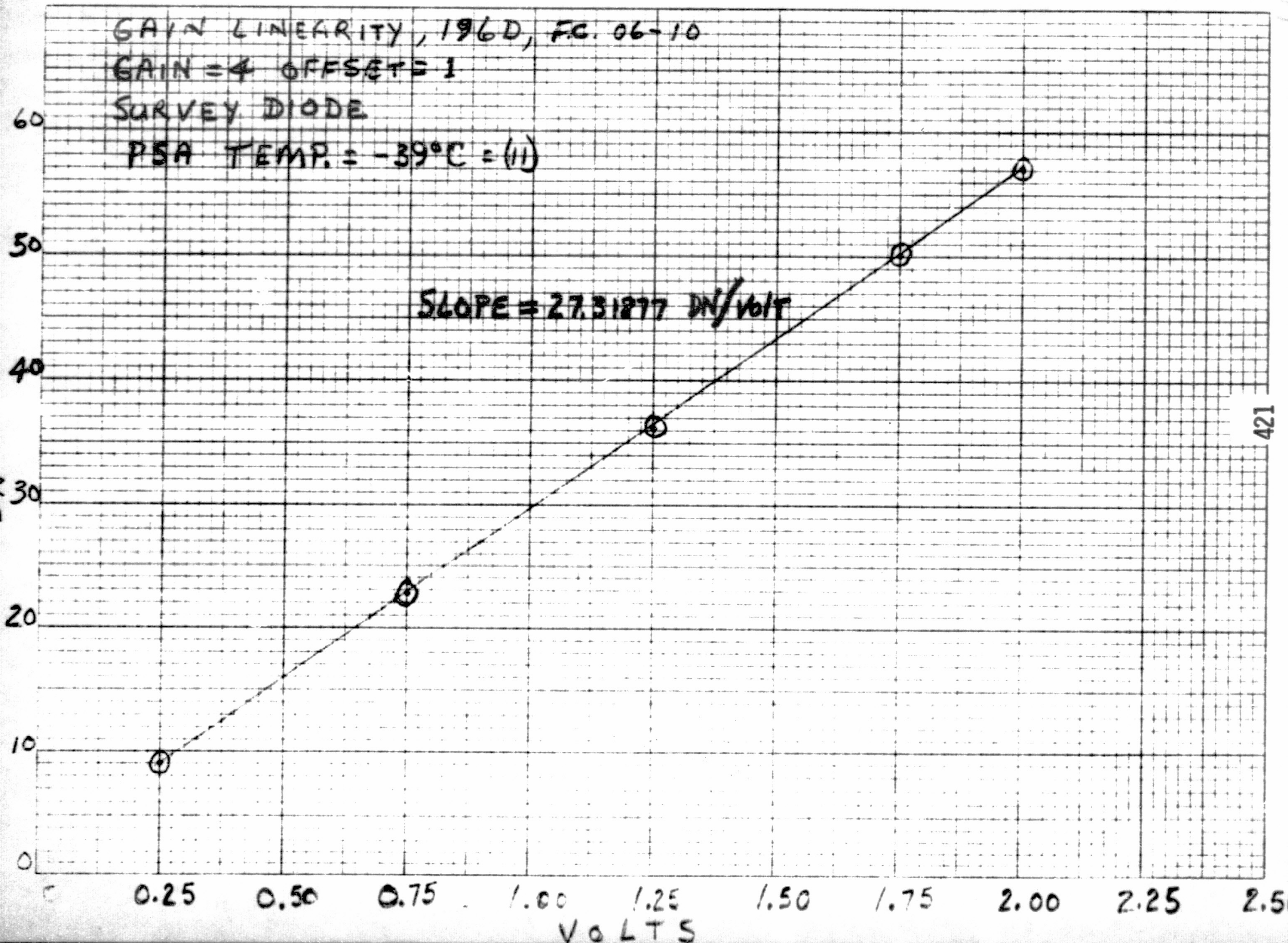

421

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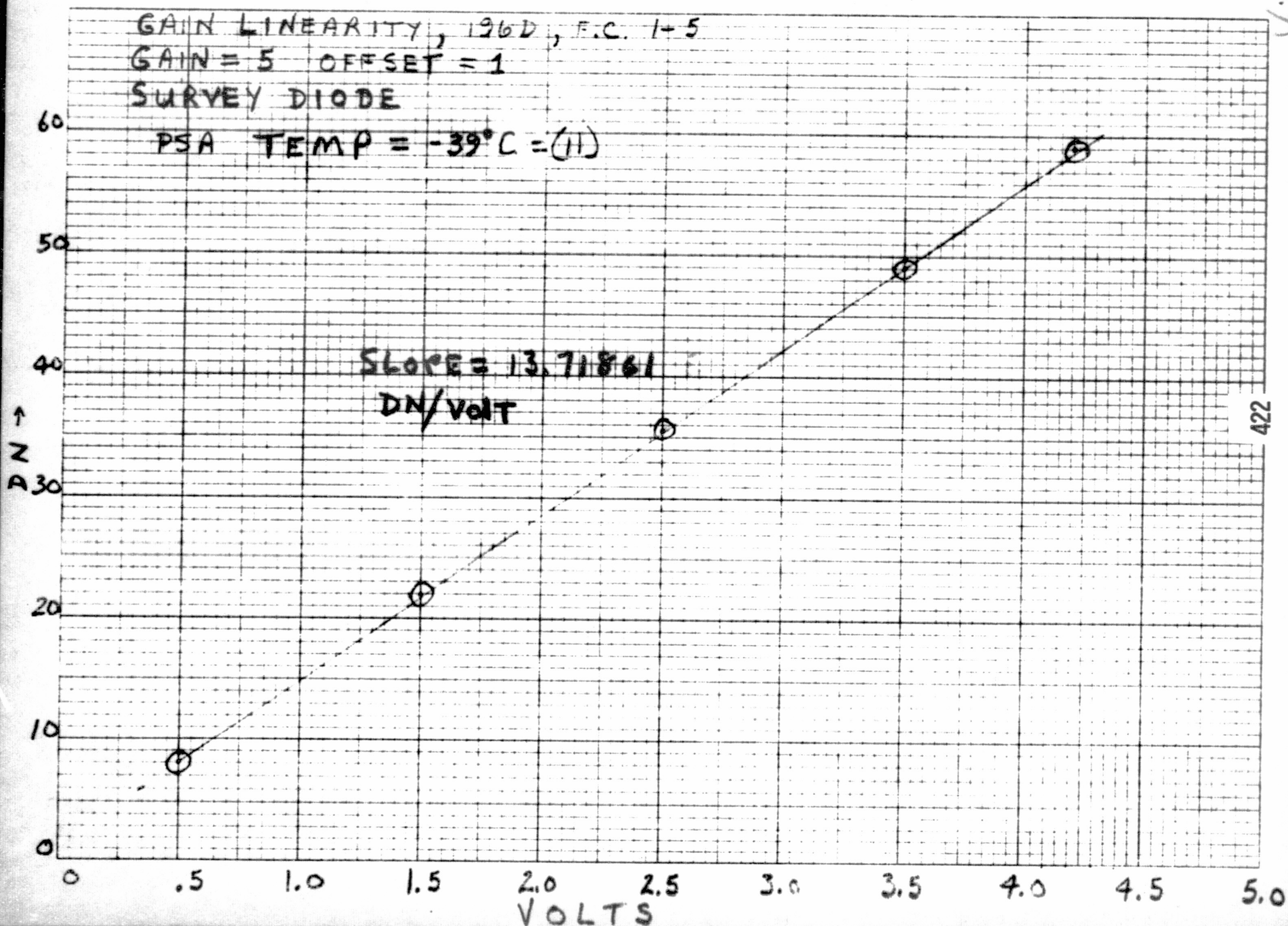

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 197D FRAME COUNT: 26-30 FILES: 26-30

GAIN = 0 OFFSET = 1

PSA TEMP = +16°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.050	57.811		0.742	26
0.045	54.957		0.769	27
0.030	48.328		0.716	28
0.020	44.884		0.767	29
0.015	41.221		0.762	30

P, G

GAIN = 450.55420 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 197D **FRAME COUNT:** 21-25 **FILES:** 21-25

GAIN = 1 **OFFSET =** 1

PSA TEMP = +14°C

SURVEY DIODE SELECT

VOLTS	DN	± SIGMA	FRAME COUNT
0.20	61.913	PARTIALLY SATURATED	21
0.17	55.450	0.499	22
0.155	51.630	0.489	23
0.090	36.744	0.441	24
0.030	23.320	0.472	25

GAIN = 228.76236 DN/VOLT

√

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 197D FRAME COUNT: 16-20 FILES: 16-20

GAIN = 2 OFFSET = 1 FRAME COUNT: 16-20 FILES: 16-20

PSA TEMP = +14°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.48	62.000		SATURATION	16
0.44	57.436		0.517	17
0.31	43.000		0.0	18
0.19	29.894		0.352	19
0.06	15.000		0.0	20

GAIN = 111.45090 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 197D FRAME COUNT: 11-15 FILES: 11-15

GAIN = 3 OFFSET = 1

PSA TEMP = +14°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
1.00	60.000		0.0	11
0.87	52.999		0.047	12
0.62	38.737		0.441	13
0.37	24.960		0.197	14
0.12	11.000		0.0	15

GAIN = 55.78564 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 197D FRAME COUNT: 06-10 FILES: 06-10

GAIN = 4 OFFSET = 1

PSA TEMP = +14°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	58.000		0.0	06
1.75	51.000		0.0	07
1.25	37.000		0.0	08
0.75	23.000		0.0	09
0.25	09.000		0.0	10

GAIN = 27.99994 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 197D FRAME COUNT: 01-05 FILES: 01-05

GAIN = 5 OFFSET = 1

PSA TEMP = +14°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
4.20	59.000	0.0	01
3.50	50.000	0.0	02
2.50	36.000	0.0	03
1.50	22.000	0.0	04
0.50	08.000	0.0	05

GAIN = 13.84129 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D   FRAME COUNT: 26-30   FILES: 91-95

GAIN = 0   OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA		FRAME COUNT
0.050	61.771		0.432	4% SAT	26
0.045	59.237		0.592		27
0.030	52.686		0.597		28
0.020	49.077		0.654		29
0.015	47.047		0.639		30

?

GAIN = 404.18408 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 21-25 FILES: 86-90

GAIN = 1 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA		FRAME COUNT
0.20	61.873		0.354	6% SAT	21
0.17	57.074		0.309		22
0.155	53.507		0.530		23
0.090	39.010		0.183		24
0.030	26.209		0.407		25

?

GAIN = 220.27850 DN/VOLT

430

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 16-20 FILES: 81-85

GAIN = 2 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.48	62.000	SATURATION	16
0.44	57.983	0.203	17
0.31	43.017	0.141	18
0.19	29.969	0.209	19
0.06	15.000	0.0	20

GAIN = 112.71609 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 11-15 FILES: 76-80

GAIN = 3 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
1.00	60.000 ✓	0.0 ✓	11
0.87	52.979	0.149	12
0.62	39.000	0.0	13
0.37	25.000	0.0	14
0.12	11.000	0.0	15

GAIN = 55.76968 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D   FRAME COUNT: 06-10   FILES: 71-75

GAIN = 4   OFFSET = 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	58.000	✓	0.0 ✓	06
1.75	51.000		0.0	07
1.25	37.000		0.0	08
0.75	23.000		0.0	09
0.25	09.000		0.0	10

GAIN = 27.99994 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 01-05 FILES: 66-70

GAIN = 5 OFFSET = 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	59.000 ✓		0.0 ✓	01
3.50	50.000		0.0	02
2.50	36.000		0.0	03
1.50	22.00		0.0	04
0.50	08.000		0.0	05

GAIN = 13.84129 DN/VOLT

434

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D   FRAME COUNT: 26-30   FILES: 26-30

GAIN = 0   OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE

VOLTS	DN	±	SIGMA	FRAME COUNT
0.050	58.372		0.983	26
0.045	55.798		0.988	27
0.030	49.334		0.917	28
0.020	45.082		0.963	29
0.015	42.154		0.777	30

GAIN = 451.39233 DN/VOLT

425

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 21-25 FILES: 21-25

GAIN = 1 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE

VOLTS	DN ± SIGMA		FRAME COUNT
0.20	58.429	0.497	21
0.17	52.428	0.497	22
0.155	48.666	0.474	23
0.090	33.926	0.320	24
0.030	20.727	0.446	25

GAIN = 223.72998 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 16-20 FILES: 16-20

GAIN = 2 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE

VOLTS	DN ±	SIGMA	FRAME COUNT
0.48	60.022 ✓	0.153 ✓	16
0.44	56.002	0.067	17
0.31	41.428	0.544	18
0.19	28.000	0.0	19
0.06	13.308	0.503	20

GAIN = 111.56445 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D FRAME COUNT: 11-15 FILES: 11-15

GAIN = 3 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE

VOLTS	DN ±	SIGMA	FRAME COUNT
1.00	59.000 ✓	0.0 ✓	11
0.87	52.000	0.0	12
0.62	38.000	0.0	13
0.37	24.000	0.0	14
0.12	10.000	0.0	15

GAIN = 55.78088 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D **FRAME COUNT:** 06-10 **FILES:** 06-10

GAIN = 4 **OFFSET =** 1

PSA TEMP = -39°C

SURVEY DIODE

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	57.000		0.0	06
1.75	50.000		0.0	07
1.25	36.064		0.247	08
0.75	22.999		0.036	09
0.25	09.000		0.0	10

GAIN = 27.31877 DN/VOLT

SPARE THERMAL CAL. TEST
GAIN LINEARITY

TAPE: 196D **FRAME COUNT:** 01-05 **FILES:** 01-05

GAIN = 5 **OFFSET =** 1

PSA TEMP = -39°C

SURVEY DIODE

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	59.000		0.0	01
3.50	49.000		0.0	02
2.50	35.527		0.577	03
1.50	22.000		0.0	04
0.50	08.000		0.0	05

GAIN = 13.71861 DN/VOLT

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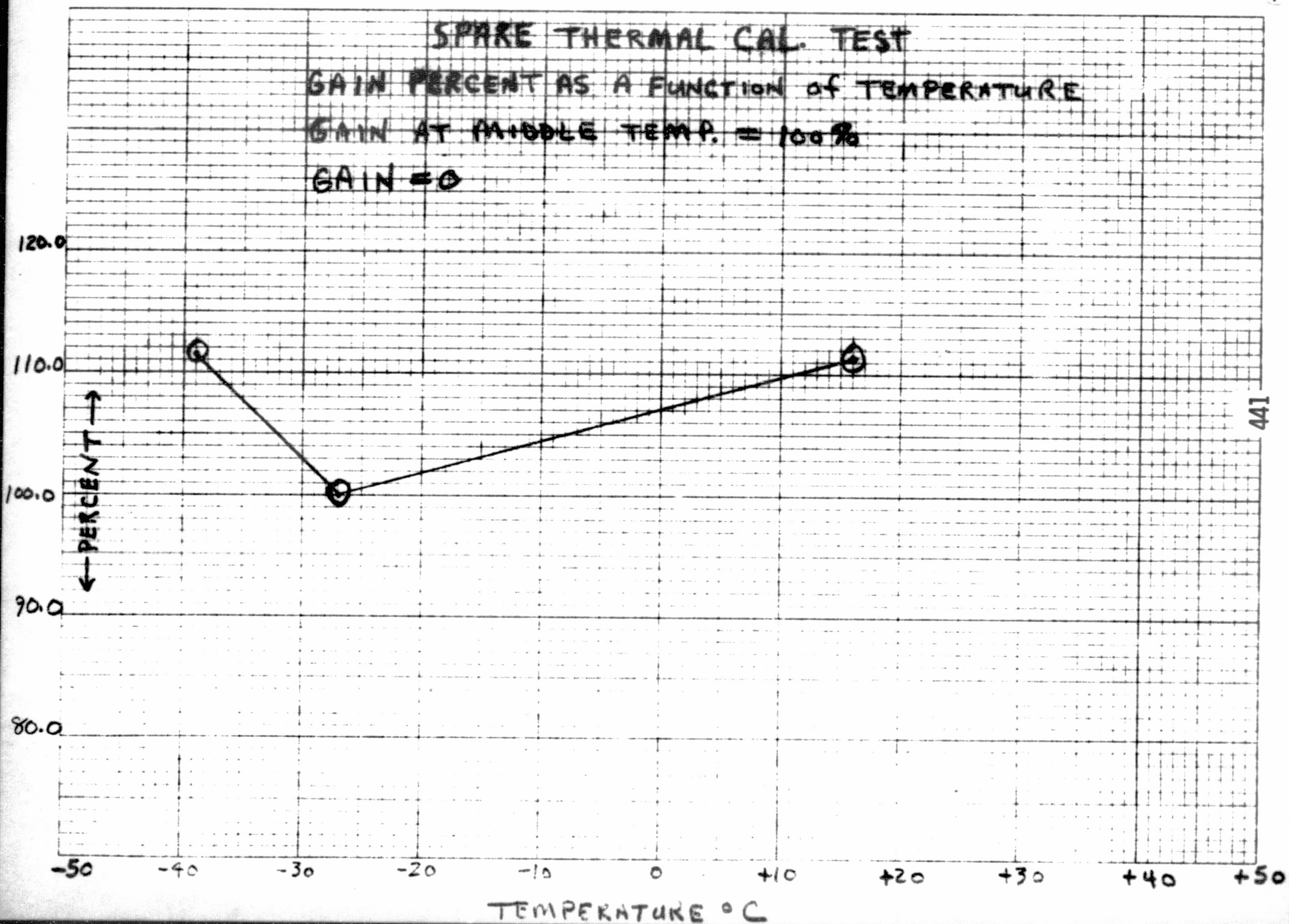

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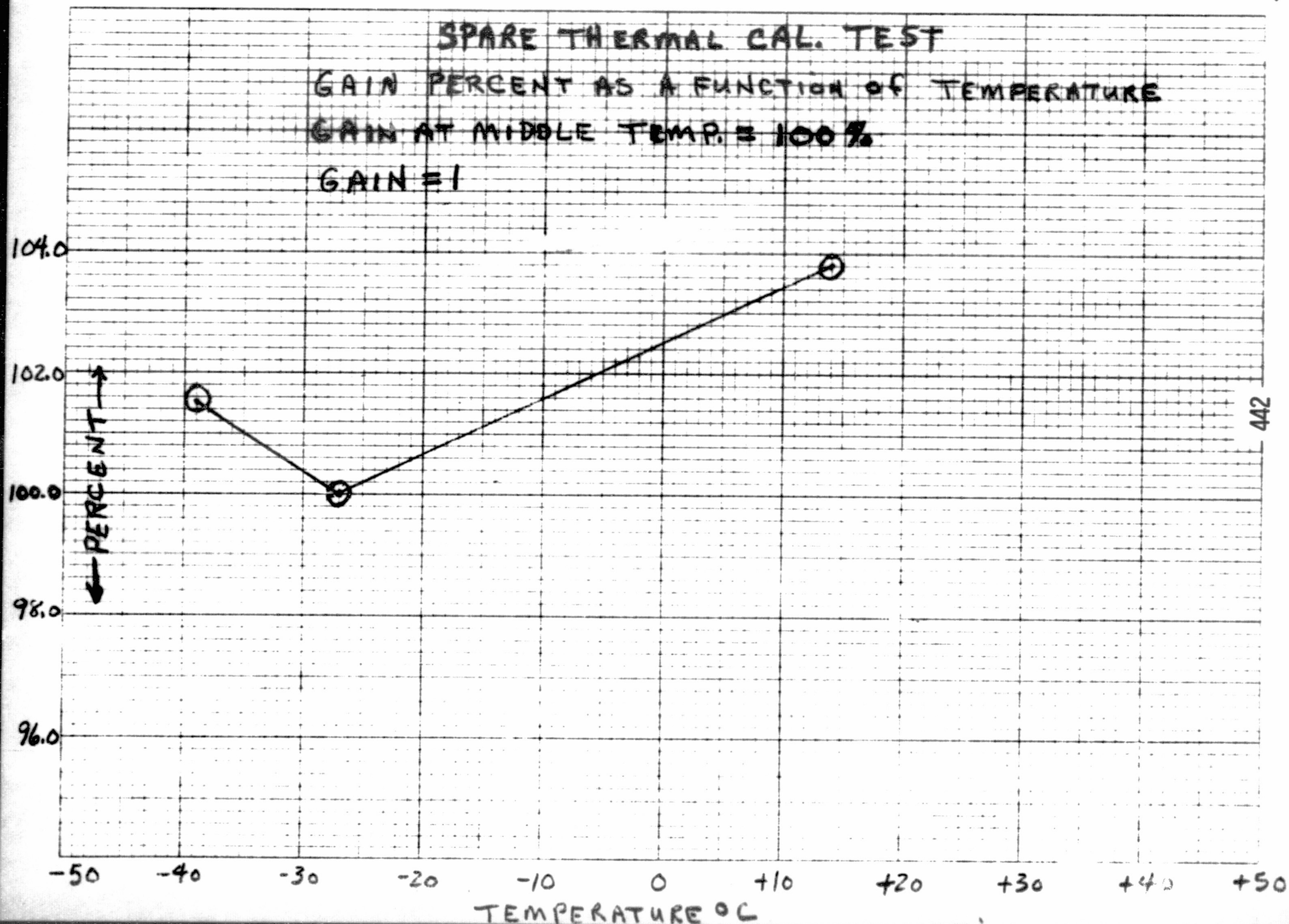

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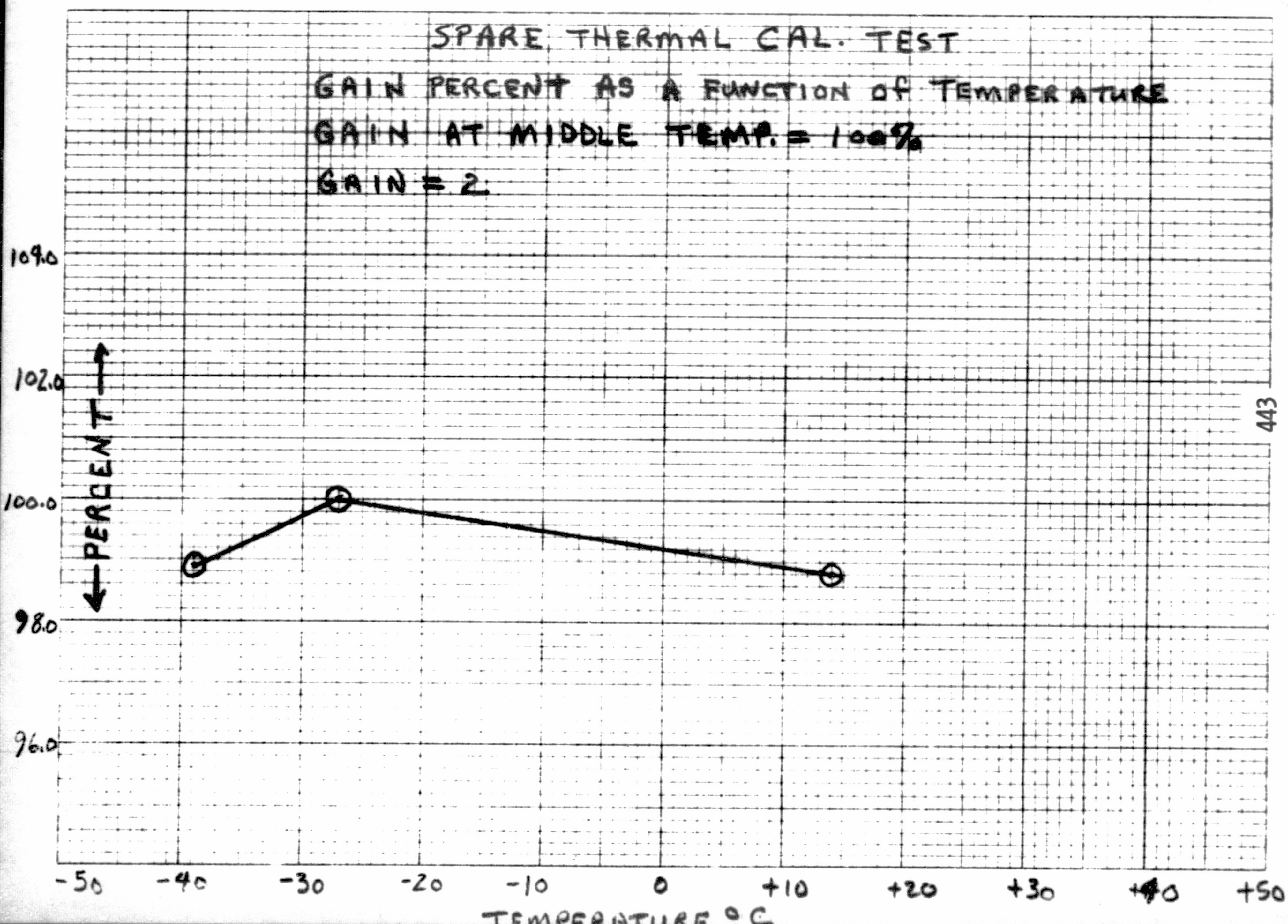

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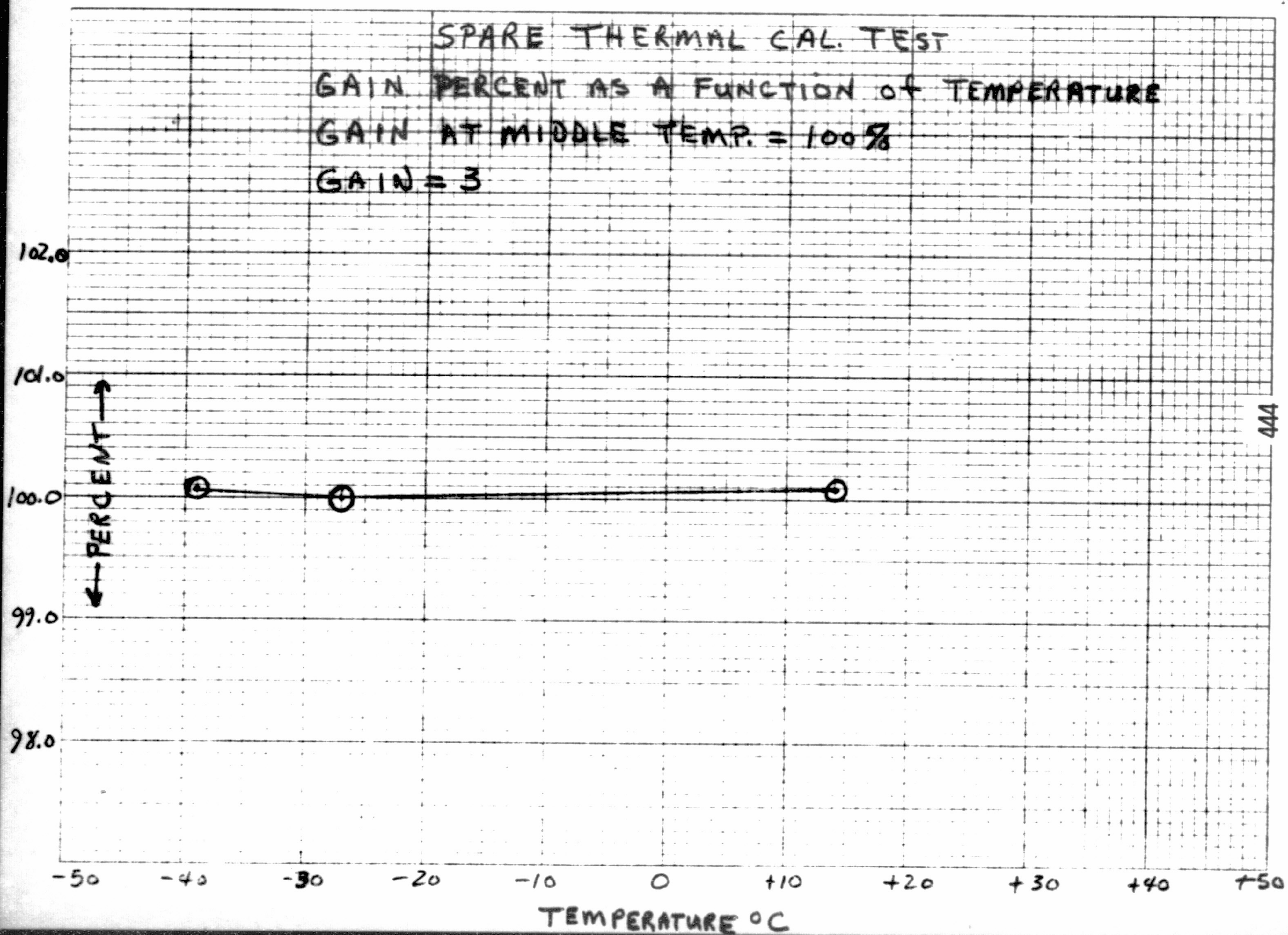

444

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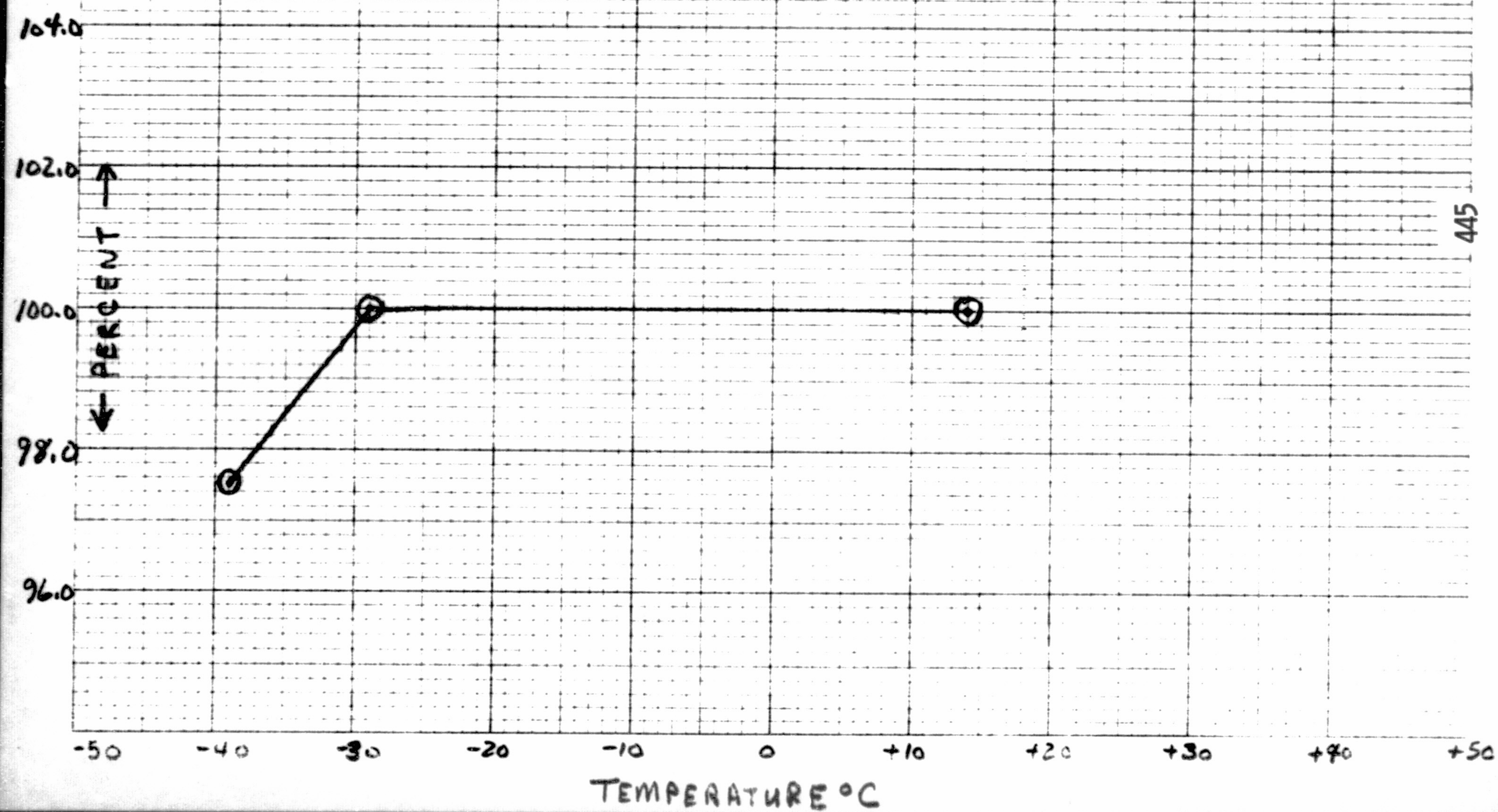
SPARE THERMAL CAL. TEST

GAIN PERCENT AS A FUNCTION OF TEMPERATURE

GAIN AT MIDDLE TEMP. = 100%

GAIN = 4

445



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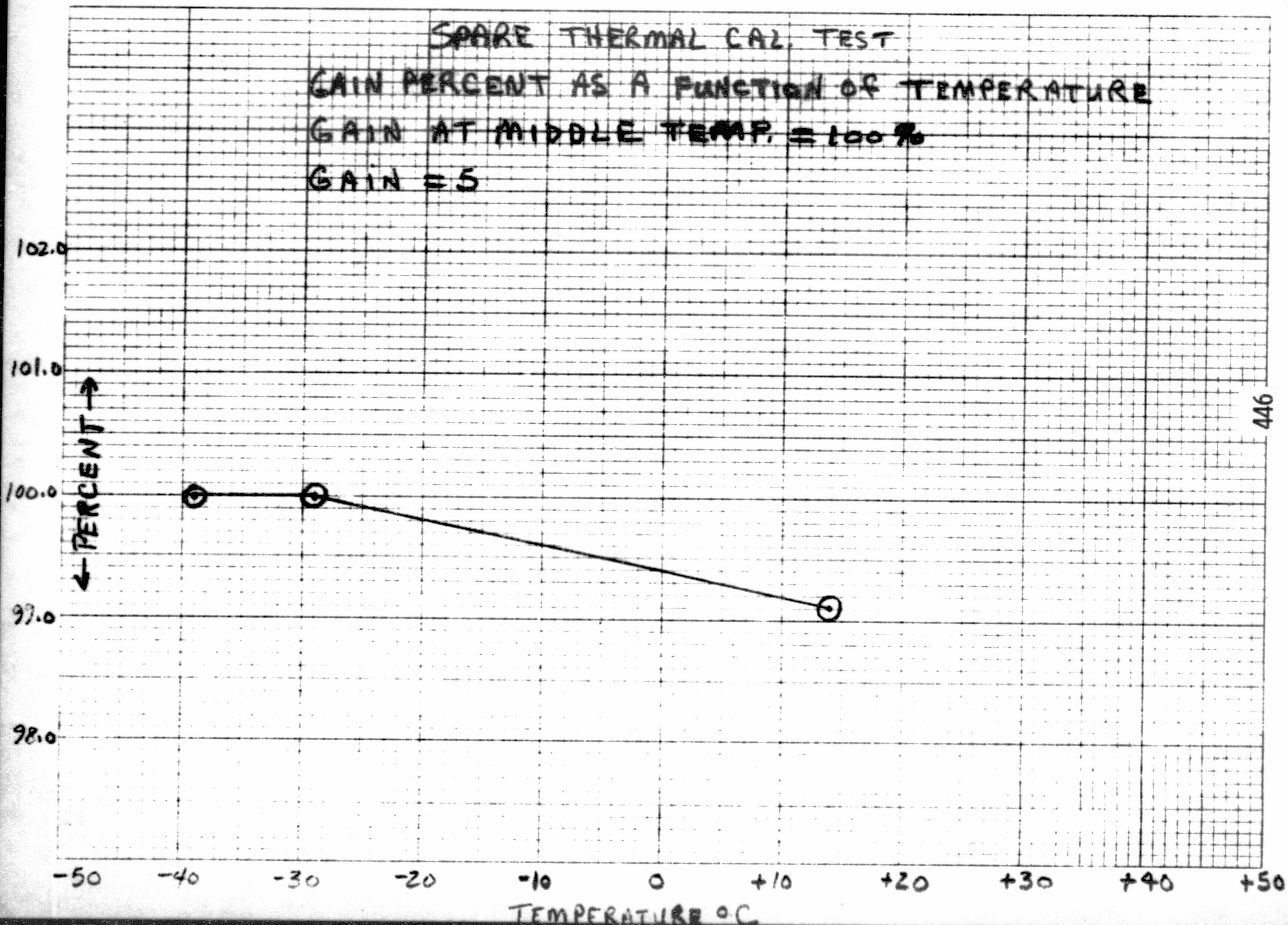

446

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** July 3, 1974

CALIBRATION RUN SPARE, OFFSET TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

1. Table of Offsets in Millivolts.
2. Graph of Millivolts vs. Offset Number.
3. The Mean Millivolts/Offset Step.

TEST DESCRIPTION D.C. voltage was input to the test connector. The camera was operated at a gain of 3. A PDF was taken at each offset, adjusting the D.C. voltage every few frames to avoid saturation (when this was done the last offset was repeated).

DATA PROCESSING DESCRIPTION Mean DN was found for each of the 37 PDF's (of the 30x30 section starting at Line 80, Sample 200). These DN's were divided by the camera gain (55.78564), to generate an 'offset ladder' for each analog input. The endpoints of successive ladders were set equal so as to make a single self consistent 'ladder'. Least squares was used to find the mean millivolts/offset step.

ANALYST Michael R Wolf
Michael R. Wolf

APPROVAL WBGr
W. B. Green

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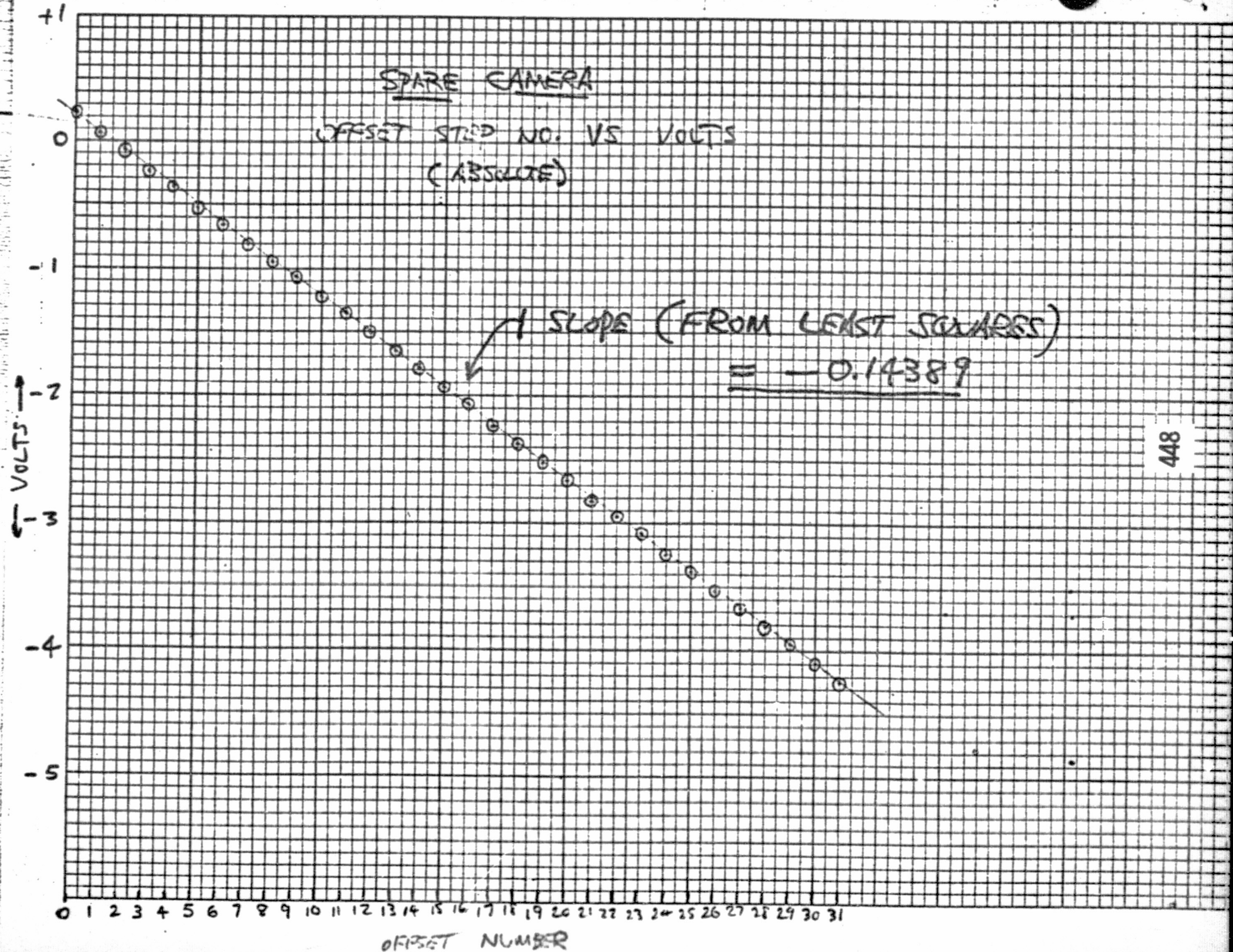

OFFSET NUMBER	DN VALUES	OFFSET IN VOLTS
0	56.738	0.21707
1	48.501	0.06942
2	40.439	-0.07510
3	32.001	-0.22636
4	24.006	-0.36967
5	16.000	-0.51319
5	55.012	-0.51319
6	47.071	-0.65554
7	39.000	-0.80021
8	31.564	-0.93351
9	24.000	-1.06910
10	15.993	-1.21263
10	54.833	-1.21263
11	46.996	-1.35312
12	38.348	-1.50814
13	30.831	-1.64289
14	22.477	-1.79264
15	14.69[illegible]	-1.93219
15	53.999	-1.93219
16	45.997	-2.07563
17	37.000	-2.23691
18	29.468	-2.37193
19	21.666	-2.51178
20	13.000	-2.66713
20	52.057	-2.66713
21	44.019	-2.81121
22	36.101	-2.95315
23	28.002	-3.09833
24	20.000	-3.24177
25	12.000	-3.38518
25	57.000	-3.38518
26	49.000	-3.52858
27	41.000	-3.67199
28	33.000	-3.81540
29	25.000	-3.95880
30	16.997	-4.10226
31	8.998	-4.24565

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 8/21/74

CALIBRATION RUN COHERENT NOISE TEST, SPARE CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of coherent noise frequencies and one-dimensional Fourier Transforms of Frames 1-30, Test 5, of the Cal. B.O.T. Repeat for the SPARE camera.

The tables represent all noise peaks of amplitude greater than 0.1 DN above background.

A summary is attached.

Data is also included for the SPARE THERMAL CAL. coherent noise test.

TEST DESCRIPTION Two dark current frames were taken with each of the Broadband and Color diodes. The dark current subtractor was On and Off for each diode with the offset changed as necessary. Low data rate frames were taken with BB1 and Survey diodes only.

DATA PROCESSING DESCRIPTION One-dimensional Fourier Transforms of each frame were computed for all lines starting with Line 65.

ANALYST David L. Atwood

APPROVAL Michael R. Wolf

4

SUMMARY:

There were extraordinary noise problems with the SPARE camera at low data rate on this test. Four frames were taken at low data rate through the BB1 and Survey diodes with the dark current subtractor on/off.

Coherent noise is a problem on all channels of the camera system and a very significant problem on most channels. These noise problems seem to be independent of the dark current subtractor and independent for the most part, of the selected diode and temperature build-up inside the camera. Some of the noise problems are obviously mode dependent.

Dark current subtractor hold drift continues to be a problem.

From the limited amount of data taken for the coherent noise test during SPARE THERMAL CAL. testing, it seems that coherent noise continues to be a problem at all temperature conditions. Two frames were taken at +14°C, -25°C and -39°C through the BB2 diode. One frame at -25°C was saturated and one frame at -39°C was saturated.

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

DC

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
1	BB1	1	.0195	62.40	2.077	+26°C
1	BB1	2	.0566	181.12	0.664	+26°C
1	BB1	3	.0937	299.84	0.686	+26°C
1	BB1	4	.1308	418.56	0.856	+26°C
1	BB1	5	.2070	662.40	0.429	+26°C
1	BB1	6	.2441	781.12	0.459	+26°C
1	BB1	7	.2578	824.96	0.357	+26°C
1	BB1	8	.3183	1018.56	0.361	+26°C
1	BB1	9	.3750	1200.00	0.846	+26°C
					6,735	
2	BB1	1	.0195	62.40	1.819	+28°C
2	BB1	2	.0566	181.12	0.626	+28°C
2	BB1	3	.0937	299.84	0.567	+28°C
2	BB1	4	.1308	418.56	0.851	+28°C
2	BB1	5	.2070	662.40	0.422	+28°C
2	BB1	6	.2441	781.12	0.440	+28°C
2	BB1	7	.2578	824.96	0.360	+28°C
2	BB1	8	.3183	1018.56	0.331	+28°C
2	BB1	9	.3750	1200.00	0.880	+28°C
					6,296	

$\overline{\Sigma}$ 6.5155

DC

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
3	BB2	1	.0195	62.40	1.417	+26°C
3	BB2	2	.0566	181.12	0.473	+26°C
3	BB2	3	.0937	299.84	0.448	+26°C
3	BB2	4	.1308	418.56	0.663	+26°C
3	BB2	5	.2070	662.40	0.337	+26°C
3	BB2	6	.2441	781.12	0.333	+26°C
3	BB2	7	.2578	824.96	0.441	+26°C
3	BB2	8	.3183	1018.56	0.276	+26°C
3	BB2	9	.3750	1200.00	0.702	+26°C
					509	
4	BB2	1	.0195	62.40	1.495	+28°C
4	BB2	2	.0566	181.12	0.454	+28°C
4	BB2	3	.0937	299.84	0.515	+28°C
4	BB2	4	.1308	418.56	0.645	+28°C
4	BB2	5	.2070	662.40	0.348	+28°C
4	BB2	6	.2441	781.12	0.351	+28°C
4	BB2	7	.2578	824.96	0.396	+28°C
4	BB2	8	.3750	1200.00	0.676	+28°C
					4.88	

$\overline{\Sigma}$ 4,985

45L

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
5	BB3	1	.0195	62.40	0.287	+28°C
5	BB3	2	.0566	181.12	0.805	+28°C
5	BB3	3	.0937	299.84	0.772	+28°C
5	BB3	4	.1308	418.56	1.008	+28°C
5	BB3	5	.2070	662.40	0.516	+28°C
5	BB3	6	.2441	781.12	0.524	+28°C
5	BB3	7	.2578	824.96	0.483	+28°C
5	BB3	8	.3183	1018.56	0.385	+28°C
5	BB3	9	.3750	1200.00	1.018	+28°C
					5.798	
6	BB3	1	.0195	62.40	2.267	+28°C
6	BB3	2	.0566	181.12	0.835	+28°C
6	BB3	3	.0937	299.84	0.754	+28°C
6	BB3	4	.1308	418.56	1.012	+28°C
6	BB3	5	.1660	531.20	0.314	+28°C
6	BB3	6	.2070	662.40	0.507	+28°C
6	BB3	7	.2441	781.12	0.532	+28°C
6	BB3	8	.2578	824.96	0.481	+28°C
6	BB3	9	.3183	1018.56	0.378	+28°C
6	BB3	10	.3750	1200.00	1.013	+28°C
					8.093	
7	BB4	1	.0195	62.40	1.815	+28°C
7	BB4	2	.0566	181.12	0.649	+28°C
7	BB4	3	.0937	299.84	0.597	+28°C
7	BB4	4	.1308	418.56	0.821	+28°C
7	BB4	5	.2070	662.40	0.434	+28°C
7	BB4	6	.2441	781.12	0.431	+28°C
7	BB4	7	.2578	824.96	0.352	+28°C
7	BB4	8	.3183	1018.56	0.303	+28°C
7	BB4	9	.3750	1200.00	0.845	+28°C
					6.247	
8	BB4	1	.0195	62.40	1.787	+28°C
8	BB4	2	.0566	181.12	0.676	+28°C
8	BB4	3	.0937	299.84	0.603	+28°C
8	BB4	4	.1308	418.56	0.830	+28°C
8	BB4	5	.2070	662.40	0.426	+28°C
8	BB4	6	.2441	781.12	0.447	+28°C
8	BB4	7	.2578	824.96	0.314	+28°C
8	BB4	8	.3750	1200.00	0.822	+28°C
					5.905	

DC

$\Sigma = 6.9455$

DC

$\Sigma\ 6.076$

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

BC

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
9	SURVEY	1	.0195	62.40	0.717	+28°C
10	SURVEY	1	.0195	62.40	0.451	+28°C

Σ=.584

BC

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
11	BLUE	1	.0195	62.40	1.887	+28°C
11	BLUE	2	.0566	181.12	0.891	+28°C
11	BLUE	3	.0937	299.84	0.659	+28°C
11	BLUE	4	.1307	418.56	0.897	+28°C
11	BLUE	5	.2070	662.40	0.493	+28°C
11	BLUE	6	.2441	781.12	0.484	+28°C
11	BLUE	7	.2578	824.96	0.550	+28°C
11	BLUE	8	.3750	1200.00	0.893	+28°C

6.754

Σ=6.768

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
12	BLUE	1	.0195	62.40	1.936	+28°C
12	BLUE	2	.0566	181.12	0.774	+28°C
12	BLUE	3	.0937	299.84	0.683	+28°C
12	BLUE	4	.1308	418.56	0.925	+28°C
12	BLUE	5	.2070	662.40	0.545	+28°C
12	BLUE	6	.2441	781.12	0.474	+28°C
12	BLUE	7	.2578	824.96	0.542	+28°C
12	BLUE	8	.3750	1200.00	0.903	+28°C

6.782

BC

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
13	GREEN	1	.0195	62.40	2.366	+28°C
13	GREEN	2	.0566	181.12	1.119	+28°C
13	GREEN	3	.0937	299.84	0.831	+28°C
13	GREEN	4	.1308	418.56	1.151	+28°C
13	GREEN	5	.2070	662.40	0.579	+28°C
13	GREEN	6	.2441	781.12	0.559	+28°C
13	GREEN	7	.2578	824.96	0.601	+28°C
13	GREEN	8	.3183	1018.56	0.392	+28°C
13	GREEN	9	.3750	1200.00	1.183	+28°C

8.781

Σ= 8.499

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
14	GREEN	1	.0195	62.40	2.145	+28°C
14	GREEN	2	.0566	181.12	0.966	+28°C
14	GREEN	3	.0937	299.84	0.755	+28°C
14	GREEN	4	.1308	418.56	1.098	+28°C
14	GREEN	5	.2070	662.40	0.568	+28°C
14	GREEN	6	.2441	781.12	0.547	+28°C
14	GREEN	7	.2578	824.96	0.547	+28°C
14	GREEN	8	.3183	1018.56	0.392	+28°C
14	GREEN	9	.3750	1200.00	1.199	+28°C

8.217

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

DC

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
15	RED	1	.0195	62.40	1.403	+28°C
15	RED	2	.0566	181.12	0.512	+28°C
15	RED	3	.0937	299.84	0.563	+28°C
15	RED	4	.1308	418.56	0.513	+28°C
15	RED	5	.2070	662.40	0.305	+28°C
15	RED	6	.2441	781.12	0.290	+28°C
15	RED	7	.3750	1200.00	0.527	+28°C
					4.113	Σ = 4.101
16	RED	1	.0195	62.40	1.455	+31°C
16	RED	2	.0566	181.12	0.478	+31°C
16	RED	3	.0937	299.84	0.568	+31°C
16	RED	4	.1308	418.56	0.495	+31°C
16	RED	5	.2070	662.40	0.300	+31°C
16	RED	6	.2441	781.12	0.280	+31°C
16	RED	7	.3750	1200.00	0.513	+31°C
					4.089	
17	IR1	1	.0195	62.40	1.903	+28°C
17	IR1	2	.0566	181.12	0.725	+28°C
17	IR1	3	.0937	299.84	0.759	+28°C
17	IR1	4	.1308	418.56	0.726	+28°C
17	IR1	5	.2070	662.40	0.424	+28°C
17	IR1	6	.2441	781.12	0.395	+28°C
17	IR1	7	.2578	824.96	0.404	+28°C
17	IR1	8	.3750	1200.00	0.724	+28°C
					6.06	Σ = 6.0425
18	IR1	1	.0195	62.40	1.817	+30°C
18	IR1	2	.0566	181.12	0.816	+30°C
18	IR1	3	.0937	299.84	0.732	+30°C
18	IR1	4	.1308	418.56	0.722	+30°C
18	IR1	5	.2070	662.40	0.412	+30°C
18	IR1	6	.2441	781.12	0.421	+30°C
18	IR1	7	.2578	824.96	0.385	+30°C
18	IR1	8	.3750	1200.00	0.720	+30°C
					6.025	

DC

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

	FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.	
	19	IR2	1	.0195	62.40	2.895	+30°C	
	19	IR2	2	.0566	181.12	1.323	+30°C	
	19	IR2	3	.0937	299.84	1.163	+30°C	
	19	IR2	4	.1308	418.56	1.163	+30°C	
DC	19	IR2	5	.1660	531.20	0.434	+30°C	
	19	IR2	6	.2070	662.40	0.665	+30°C	
	19	IR2	7	.2441	781.12	0.697	+30°C	
	19	IR2	8	.2578	824.96	0.581	+30°C	
	19	IR2	9	.3183	1018.56	0.441	+30°C	
	19	IR2	10	.3750	1200.00	1.189	+30°C	
						10.551		
	20	IR2	1	.0195	62.40	2.833	+30°C	
	20	IR2	2	.0566	181.12	1.294	+30°C	Σ=10.2685
	20	IR2	3	.0937	299.84	1.125	+30°C	
	20	IR2	4	.1308	418.56	1.184	+30°C	
	20	IR2	5	.2070	662.40	0.696	+30°C	
	20	IR2	6	.2441	781.12	0.669	+30°C	
	20	IR2	7	.2578	824.96	0.576	+30°C	
	20	IR2	8	.3183	1018.56	0.453	+30°C	
	20	IR2	9	.3750	1200.00	1.156	+30°C	
						9.989		
	21	IR3	1	.0195	62.40	1.388	+31°C	
	21	IR3	2	.0566	181.12	0.544	+31°C	
	21	IR3	3	.0937	299.84	0.605	+31°C	
DC	21	IR3	4	.1308	418.56	0.585	+31°C	
	21	IR3	5	.2578	824.96	0.411	+31°C	
	21	IR3	6	.3750	1200.00	0.581	+31°C	
						4.114		Σ=4.0995
	22	IR3	1	.0195	62.40	1.309	+30°C	
	22	IR3	2	.0566	181.12	0.584	+30°C	
	22	IR3	3	.0937	299.84	0.613	+30°C	
	22	IR3	4	.1308	418.56	0.626	+30°C	
	22	IR3	5	.2578	824.96	0.397	+30°C	
	22	IR3	6	.3750	1200.00	0.556	+30°C	
						4.085		

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D LOW DATA RATE

	FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.	
DC	23	SURVEY	1	.1992	637.44	0.183	+31°C	
	23	SURVEY	2	.4003	1280.96	0.166	+31°C	
						.349		Σ= .607
	24	SURVEY	1	.1992	637.44	0,604	+31°C	
	24	SURVEY	2	.4003	1280.96	0.261	+31°C	
						.865		
DC	25	BB1	1	.2011	643.52	1.630	+31°C	
	25	BB1	2	.4003	1280.96	0.279	+31°C	
						1.909		Σ= 2.0985
	26	BB1	1	.1992	637.44	1.968	+33°C	
	26	BB1	2	.4003	1280.96	0.320	+33°C	
						2.288		

'SPARE' CAL. B.O.T. REPEAT ?

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

FRAME NO.	CHANNEL (V. COLOR)	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
27	BLUE	1	0.0195	62.40	1.266	+33°C
27	BLUE	2	0.0566	181.12	0.501	+33°C
27	BLUE	3	0.0937	299.84	1.512	+33°C
27	BLUE	4	0.1308	418.56	0.467	+33°C
27	BLUE	5	0.3750	1200.00	0.430	+33°C
					4.176	
27	GREEN	1	0.0195	62.40	1.623	+33°C
27	GREEN	2	0.0566	181.12	0.576	+33°C
27	GREEN	3	0.0937	299.84	1.834	+33°C
27	GREEN	4	0.1308	418.56	0.600	+33°C
27	GREEN	5	0.1679	537.28	0.414	+33°C
27	GREEN	6	0.3750	1200.00	0.532	+33°C
					5.579	
27	RED	1	0.0195	62.40	0.694	+33°C
27	RED	2	0.937	299.84	0.802	+33°C
					1.496	
28	BLUE	1	0.0195	62.40	1.270	+33°C
28	BLUE	2	0.0566	181.12	0.503	+33°C
28	BLUE	3	0.0937	299.84	1.444	+33°C
28	BLUE	4	0.1699	543.68	0.251	+33°C
28	BLUE	5	0.3750	1200.00	0.395	+33°C
					3.863	
28	GREEN	1	0.0195	62.40	1.594	+33°C
28	GREEN	2	0.0566	181.12	0.582	+33°C
28	GREEN	3	0.0937	299.84	1.829	+33°C
28	GREEN	4	0.1308	418.56	0.596	+33°C
28	GREEN	5	0.1679	537.28	0.412	+33°C
28	GREEN	6	0.3750	1200.00	0.529	+33°C
					5.542	
28	RED	1	0.0195	62.40	0.684	+33°C
28	RED	2	0.0937	299.84	0.819	+33°C
					1.503	

'SPARE' CAL. B.O.T. REPEAT

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

FRAME NO.	CHANNEL (IR COLOR)	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
29	IR3	1	0.0195	62.40	0.773	+33°C
29	IR3	2	0.0937	299.84	0.896	+33°C
					1.669	
29	IR2	1	0.0195	62.40	1.653	+33°C
29	IR2	2	0.0566	181.12	0.588	+33°C
29	IR2	3	0.0937	299.84	1.926	+33°C
29	IR2	4	0.1308	418.56	0.607	+33°C
29	IR2	5	0.1679	537.28	0.425	+33°C
29	IR2	6	0.3750	1200.00	0.546	+33°C
					5.745	
29	IR1	1	0.0195	62.40	1.001	+33°C
29	IR1	2	0.0566	181.12	0.336	+33°C
29	IR1	3	0.0937	299.84	1.128	+33°C
29	IR1	4	0.1308	418.56	0.352	+33°C
20	IR1	5	0.3750	1200.00	0.336	+33°C
					3.153	
30	IR3	1	0.0195	62.40	0.748	+33°C
30	IR3	2	0.0937	299.84	0.888	+33°C
					1.636	
30	IR2	1	0.0195	62.40	1.632	+35°C
30	IR2	2	0.0566	181.12	0.563	+35°C
30	IR2	3	0.0937	299.84	1.846	+35°C
30	IR2	4	0.1308	418.56	0.599	+35°C
30	IR2	5	0.1679	537.28	0.443	+35°C
30	IR2	6	0.3750	1200.00	0.528	+35°C
					5.611	
30	IR1	1	0.0195	62.40	1.000	+33°C
30	IR1	2	0.0566	181.12	0.349	+33°C
30	IR1	3	0.0937	299.84	1.161	+33°C
30	IR1	4	0.1308	418.56	0.394	+33°C
30	IR1	5	0.3750	1200.00	0.337	+33°C
					3.241	

'SPARE' THERMAL CAL. TEST

COHERENT NOISE FREQUENCIES TABLE
(HIGH DATA RATE)

TAPE ID	FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
VIK197D	125	BB2	1	0.0195	62.40	1.893	+14°C
VIK197D	125	BB2	2	0.0566	181.12	.582	+14°C
VIK197D	125	BB2	3	0.0937	299.84	1.378	+14°C
VIK197D	125	BB2	4	0.2070	662.40	.378	+14°C
VIK197D	125	BB2	5	0.2441	781.12	.395	+14°C
VIK197D	125	BB2	6	0.2578	824.96	1.000	+14°C
						5.626	Σ = 5.57
VIK197	126	BB2	1	0.0195	62.40	1.807	+14°C
VIK197	126	BB2	2	0.0566	181.12	.587	+14°C
VIK197	126	BB2	3	0.0937	299.84	1.383	+14°C
DC VIK197	126	BB2	4	0.2070	662.40	.331	+14°C
VIK197	126	BB2	5	0.2441	781.12	.417	+14°C
VIK197	126	BB2	6	0.2578	824.96	.989	+14°C
						5.514	
DC VIK196D	125	BB2	SATURATED				-25°C
VIK196D	126	BB2	1	0.0195	62.40	1.589	-25°C
VIK196D	126	BB2	2	0.0566	181.12	.460	-25°C
DC VIK196D	126	BB2	3	0.0937	299.84	1.273	-25°C
VIK196D	126	BB2	4	0.2070	662.40	.392	-25°C
VIK196D	126	BB2	5	0.2441	781.12	.412	-25°C
VIK196D	126	BB2	6	0.2597	831.04	1.014	-25°C
						5.14	
DC VIK196D	125	BB2	SATURATED				-39°C
VIK196D	126	BB2	1	0.0195	62.40	1.549	-39°C
DC VIK196D	126	BB2	2	0.0566	181.12	.620	-39°C
VIK196D	126	BB2	3	0.0937	299.84	1.361	-39°C
VIK196D	126	BB2	4	0.2597	831.04	1.307	-39°C
						4.837	

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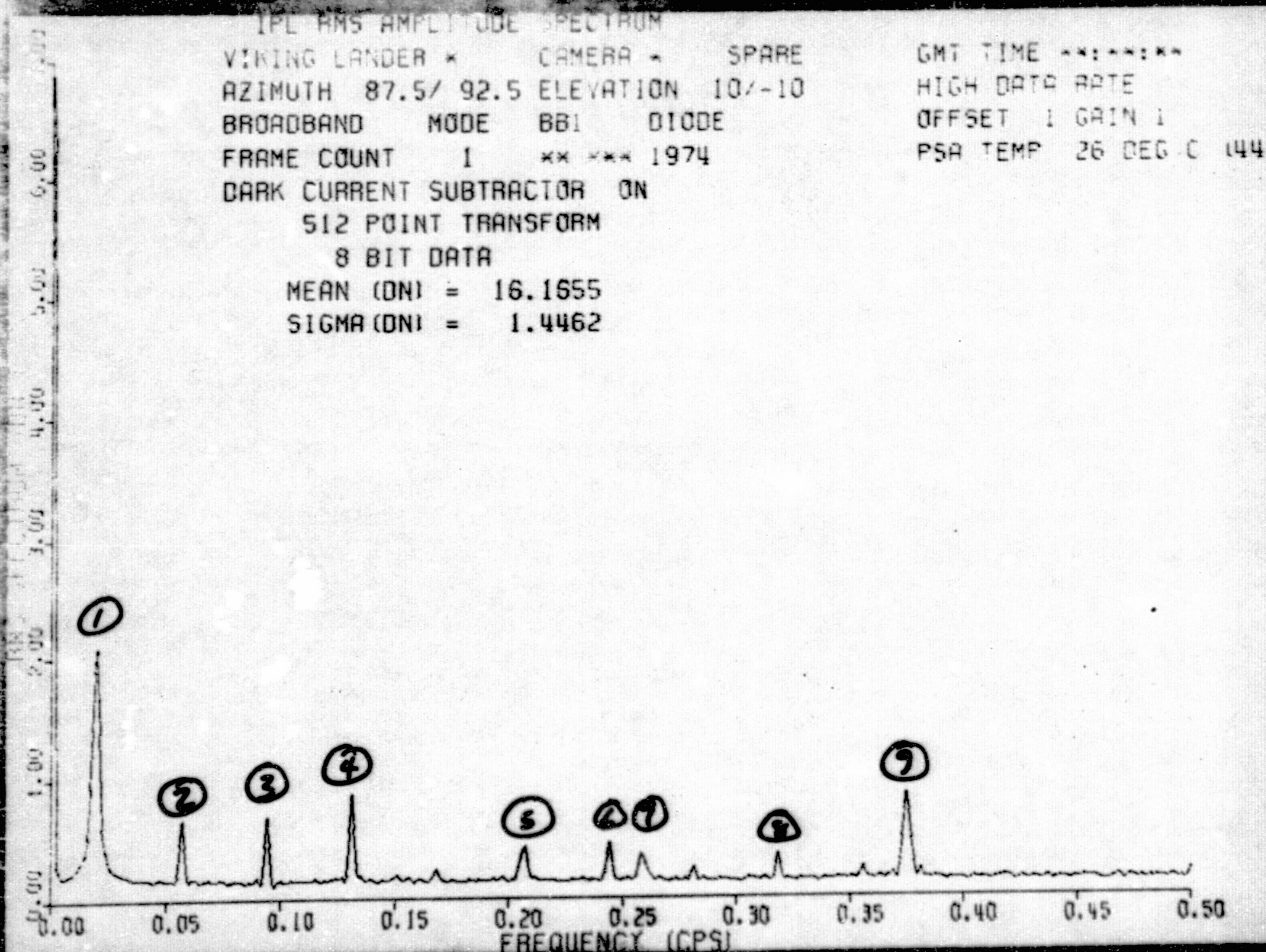

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 1 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.1655
SIGMA (DN) = 1.4462
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 26 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)
1
2
3
4
5
6
7
8
9

IPL RMS AMPLITUDE SPECTRUM

VIKING LANDER * CAMERA * SPARE GMT TIME **:**:**

AZIMUTH 87.5/ 92.5 ELEVATION 10/-10 HIGH DATA RATE

BROADBAND MODE BB1 DIODE OFFSET 4 GAIN 1

FRAME COUNT 2 ** *** 1974 PSA TEMP 28 DEG C (45

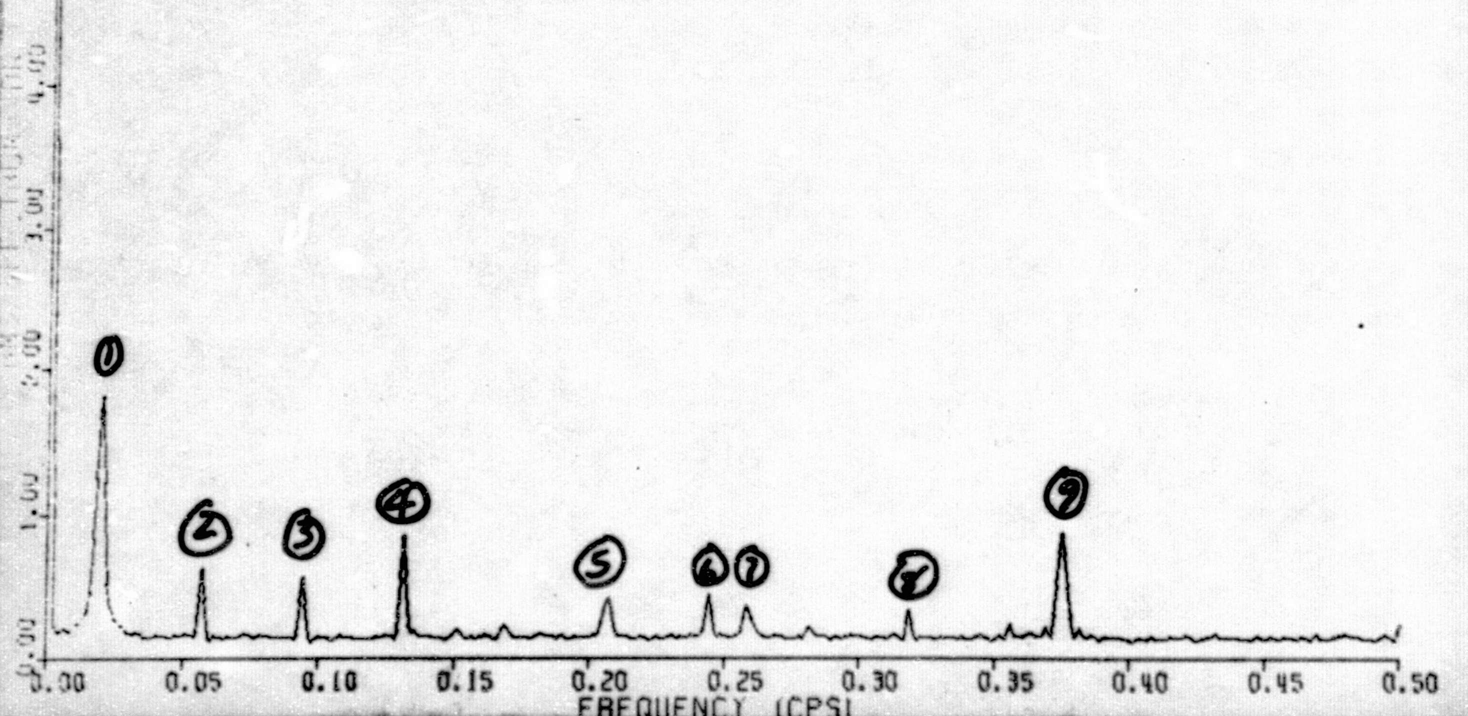
DARK CURRENT SUBTRACTOR OFF

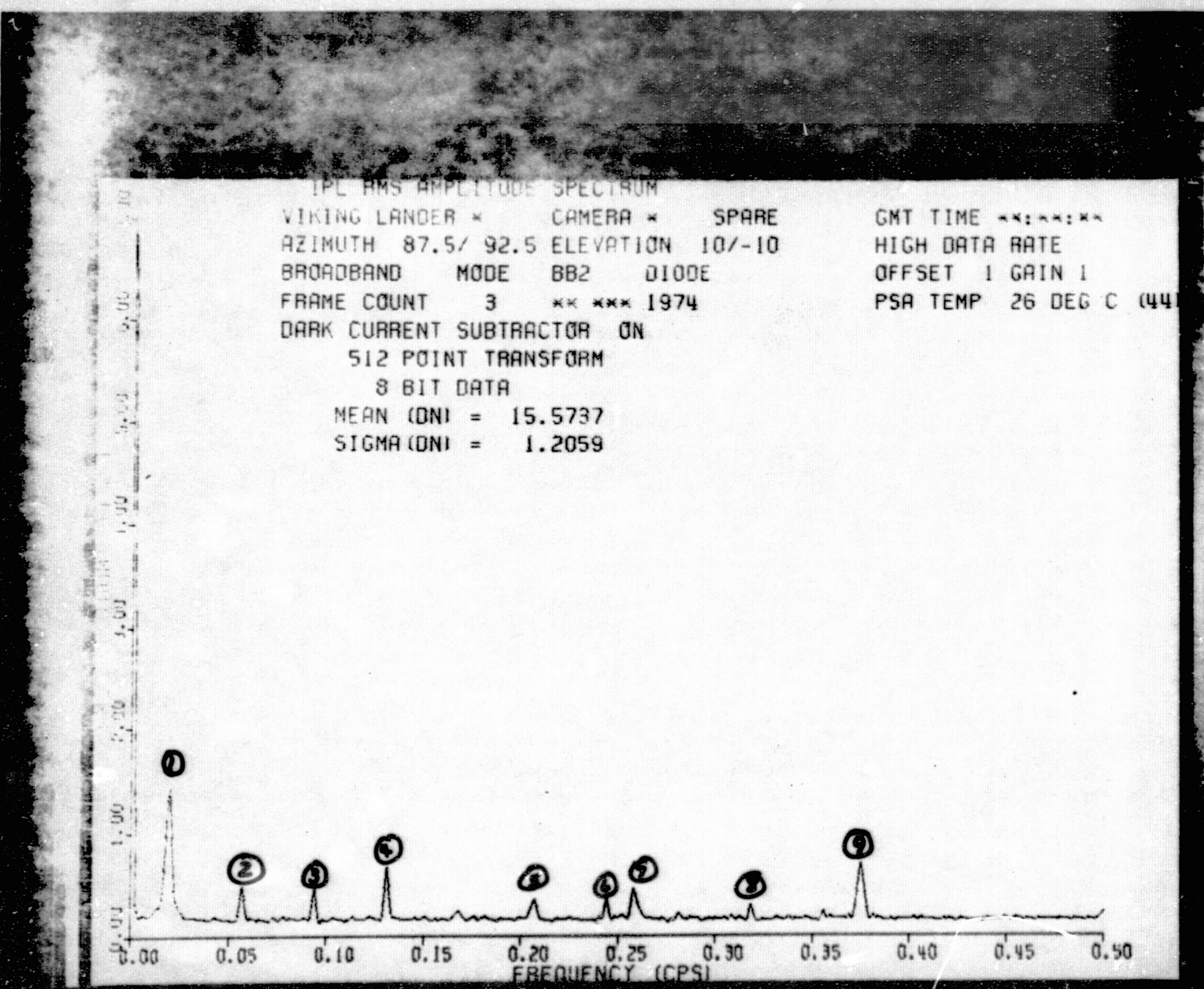
512 POINT TRANSFORM

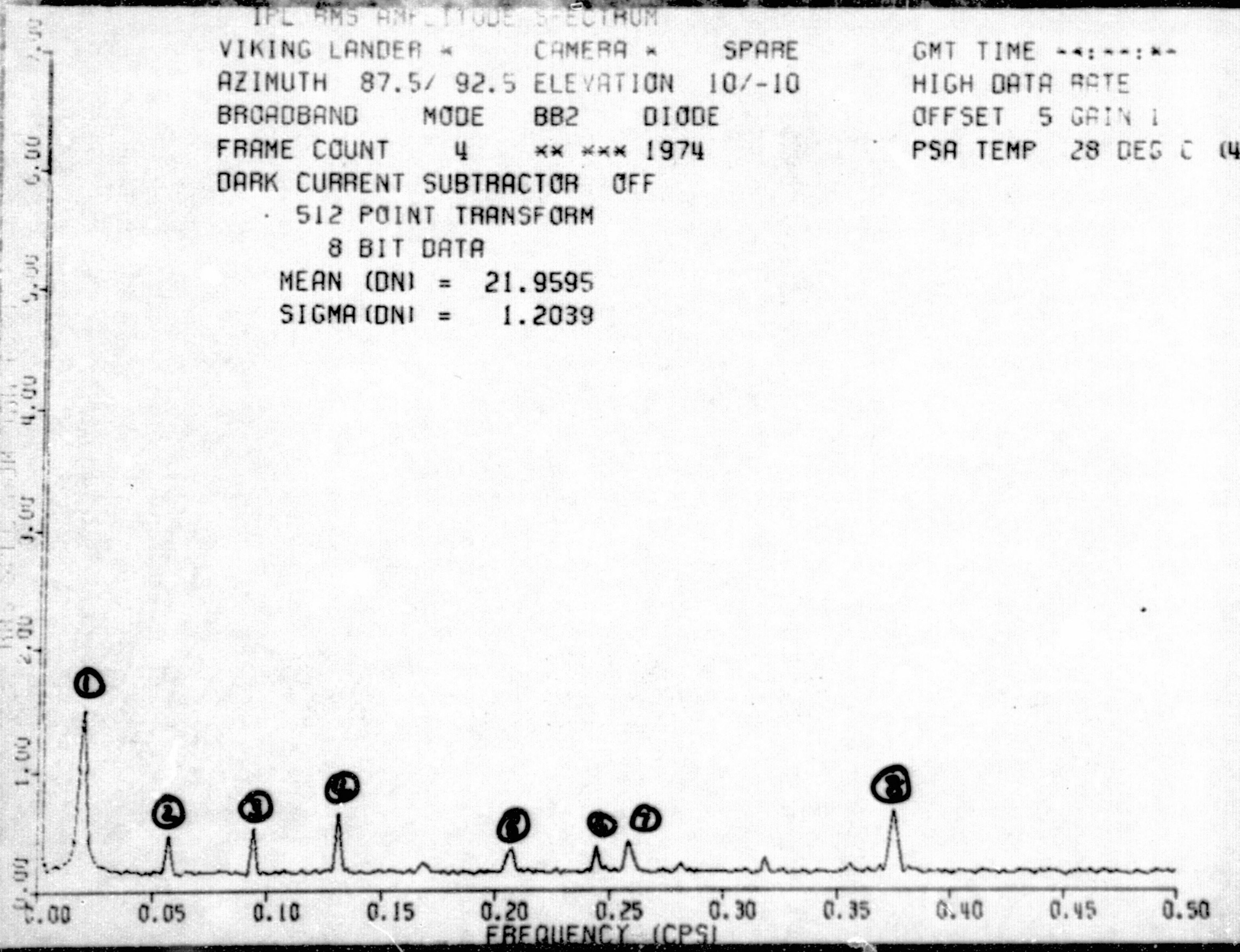
8 BIT DATA

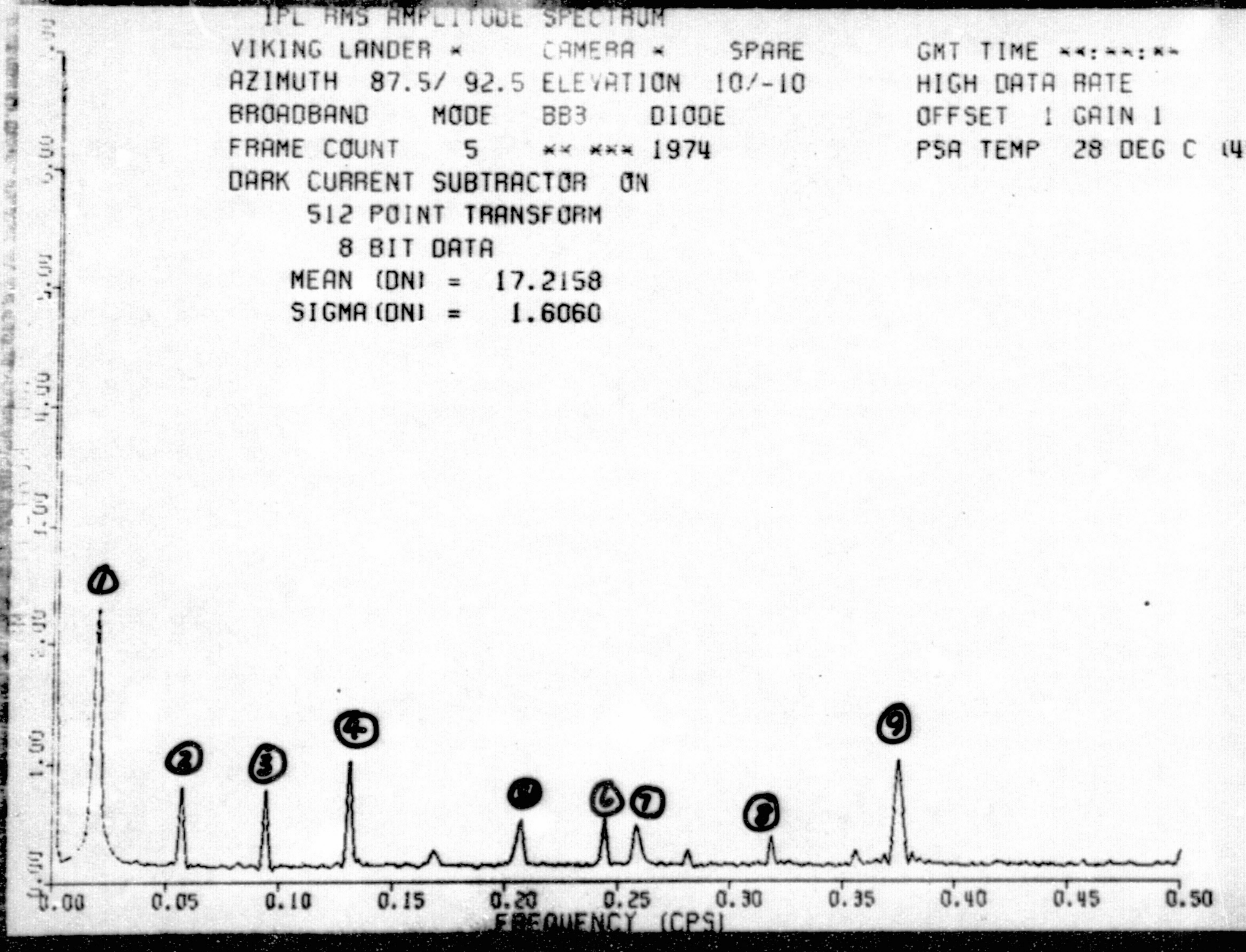
MEAN (DN) = 31.6033

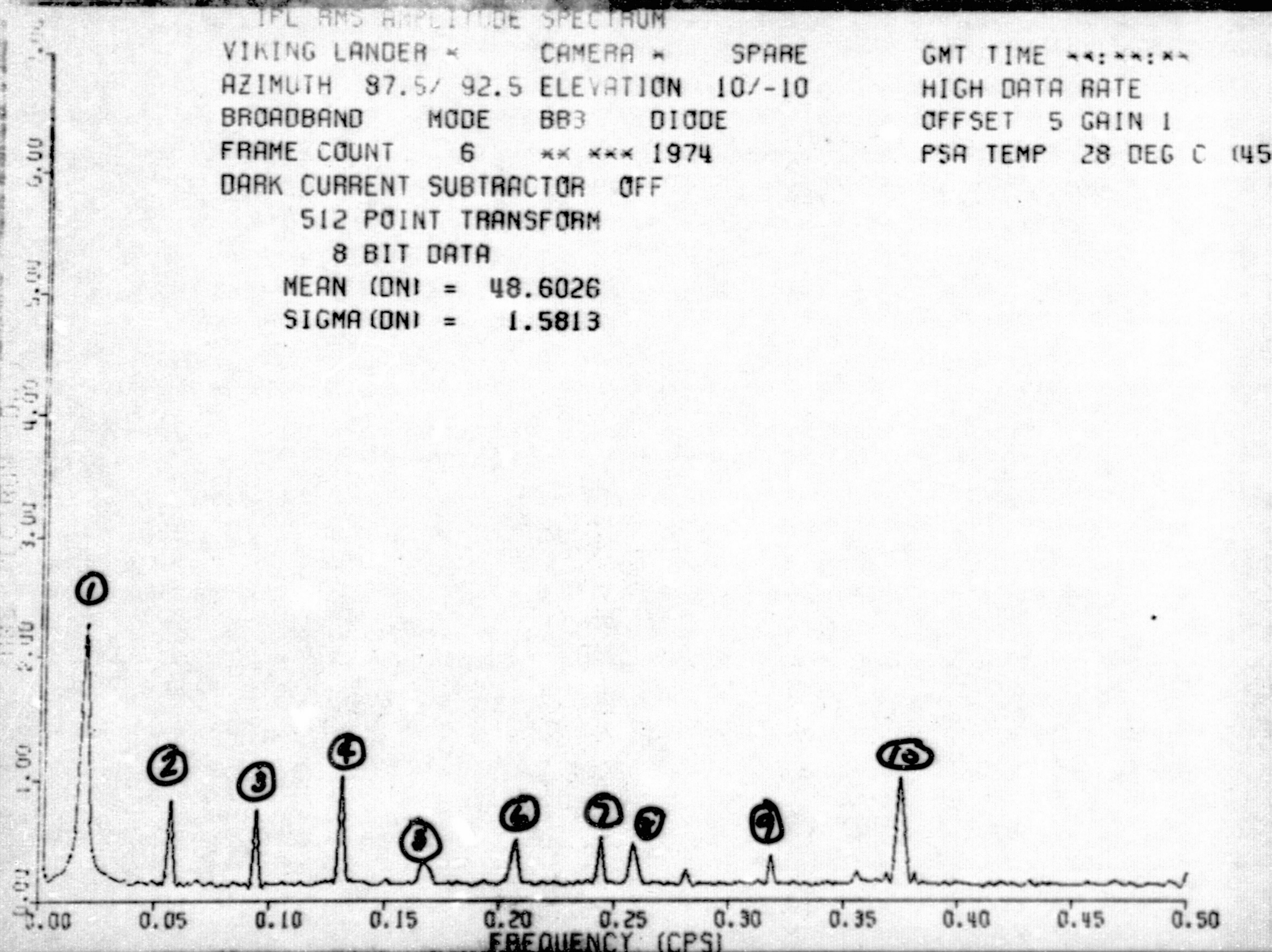
SIGMA (DN) = 1.3576



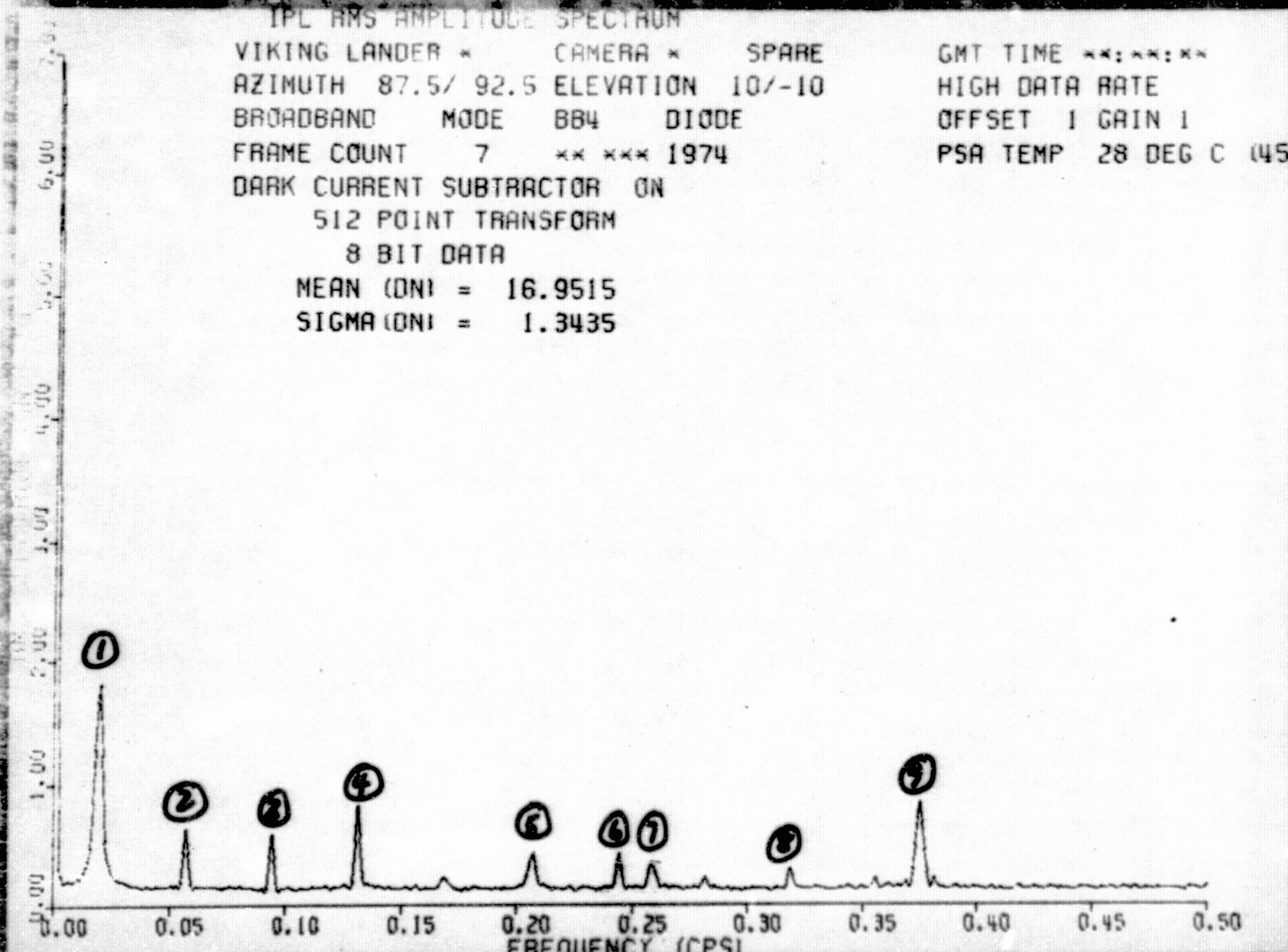

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 1 GAIN 1
FRAME COUNT 3 ** *** 1974
PSA TEMP 26 DEG C (44
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.5737
SIGMA(DN) = 1.2059
1
2
3
4
5
6
7
8
9
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   SPARE
GMT TIME **:**:**
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 4 ** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 21.9595
SIGMA (DN) = 1.2039
1
2
3
4
5
6
7
8
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB3 DIODE
FRAME COUNT 5 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 17.2158
SIGMA(DN) = 1.6060
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
1
2
3
4
6
7
8
9
0.00
1.00
2.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 87.5/ 92.5
ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE
BB3 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 6
** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 48.6026
SIGMA(DN) = 1.5813
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
1
2
3
4
5
6
7
8
9
10


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB4 DIODE
OFFSET 1 GAIN 1
FRAME COUNT 7 ** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.9515
SIGMA (DN) = 1.3435
1
2
3
4
5
6
7
8
9
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

JPL RMS AMPLITUDE SPECTRUM

VIKING LANDER *   CAMERA *   SPARE   GMT TIME **:**:**

AZIMUTH 87.5/ 92.5 ELEVATION 10/-10   HIGH DATA RATE

BROADBAND   MODE   BB4   DIODE   OFFSET 5 GAIN 1

FRAME COUNT   8   ** *** 1974   PSA TEMP 28 DEG C (45

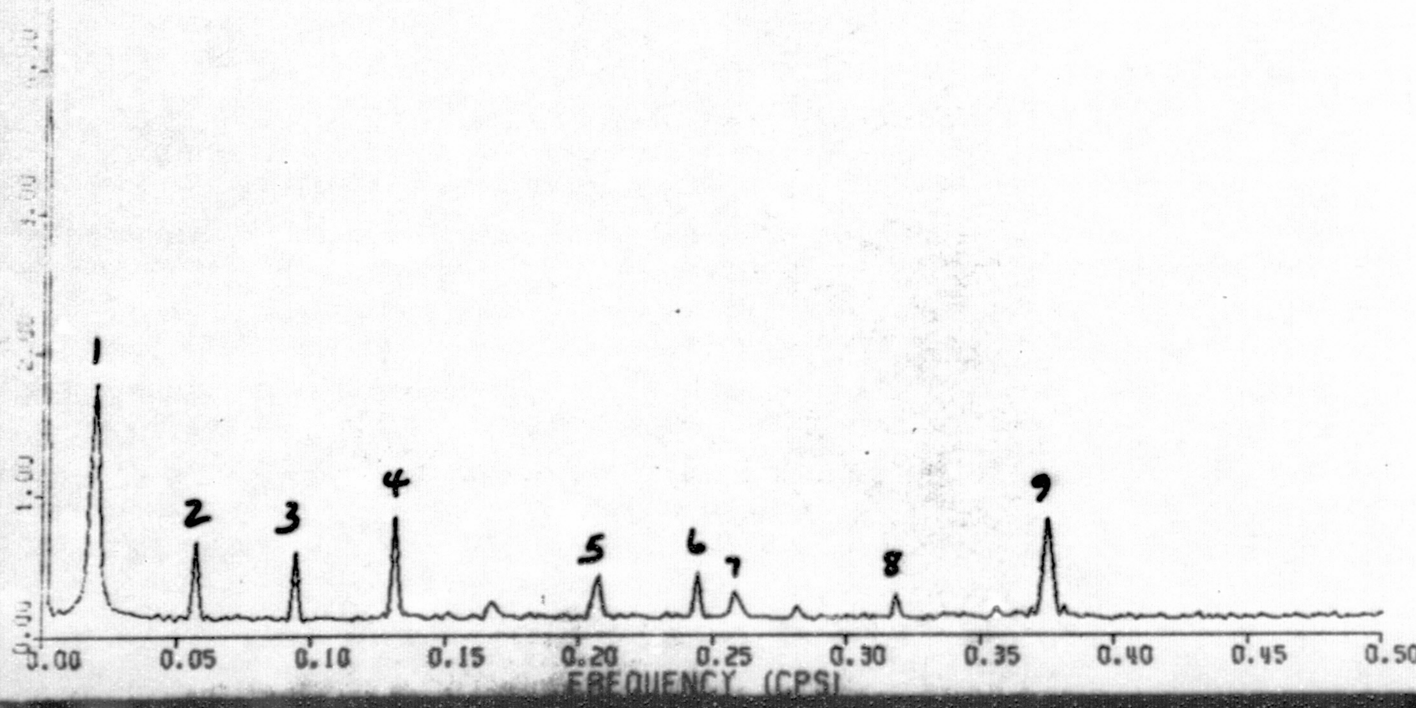
DARK CURRENT SUBTRACTOR OFF

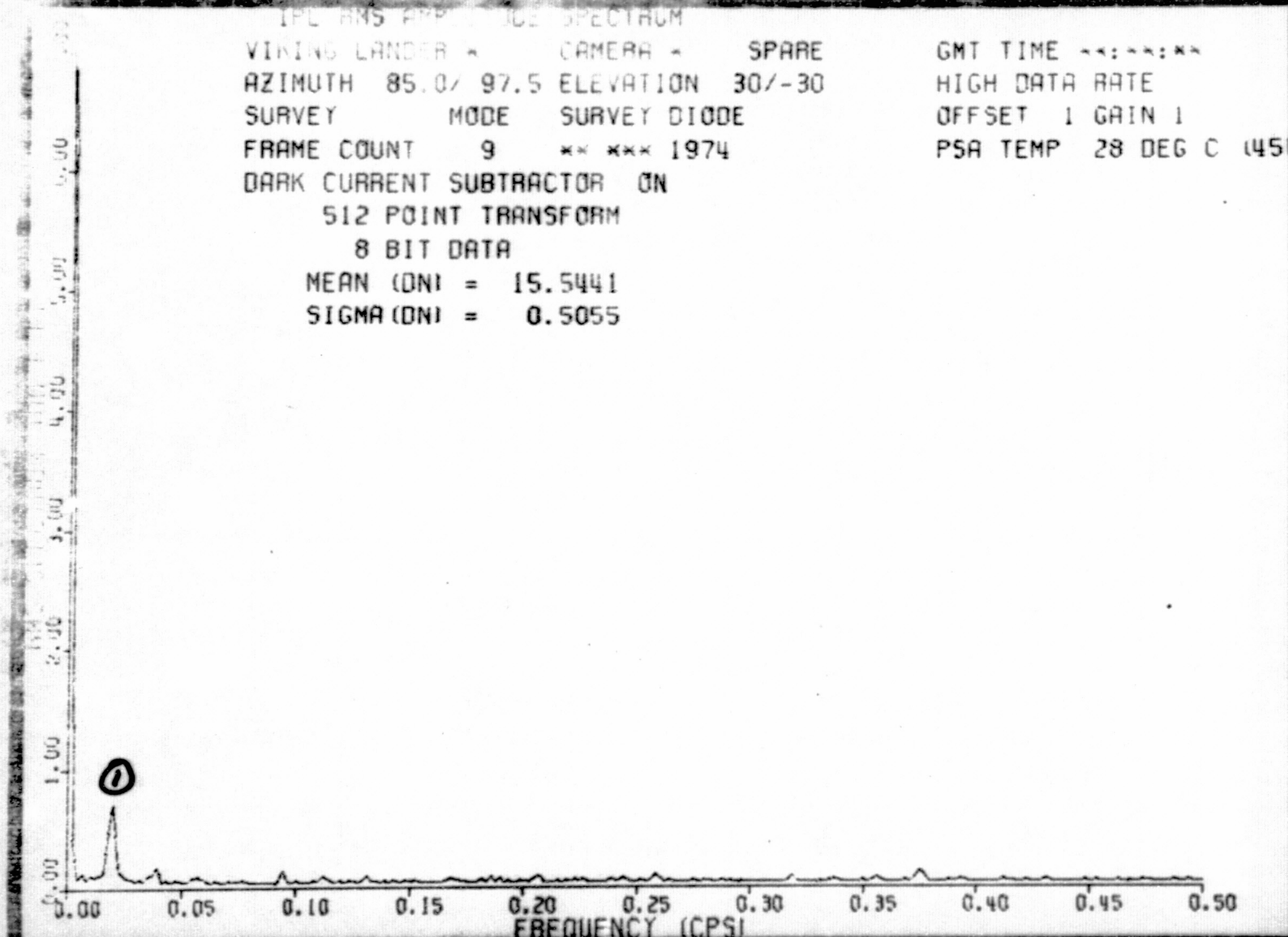
512 POINT TRANSFORM

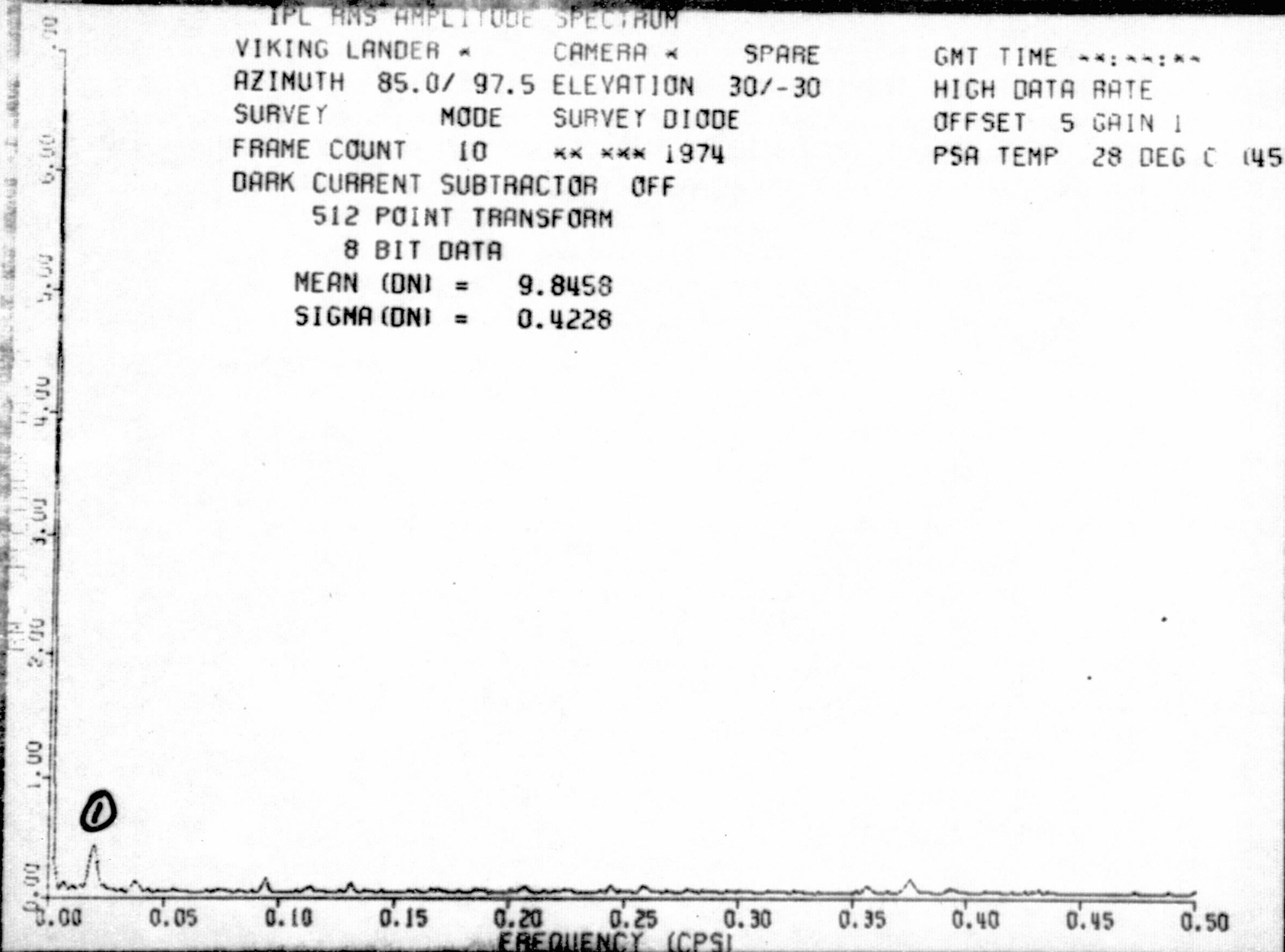
8 BIT DATA

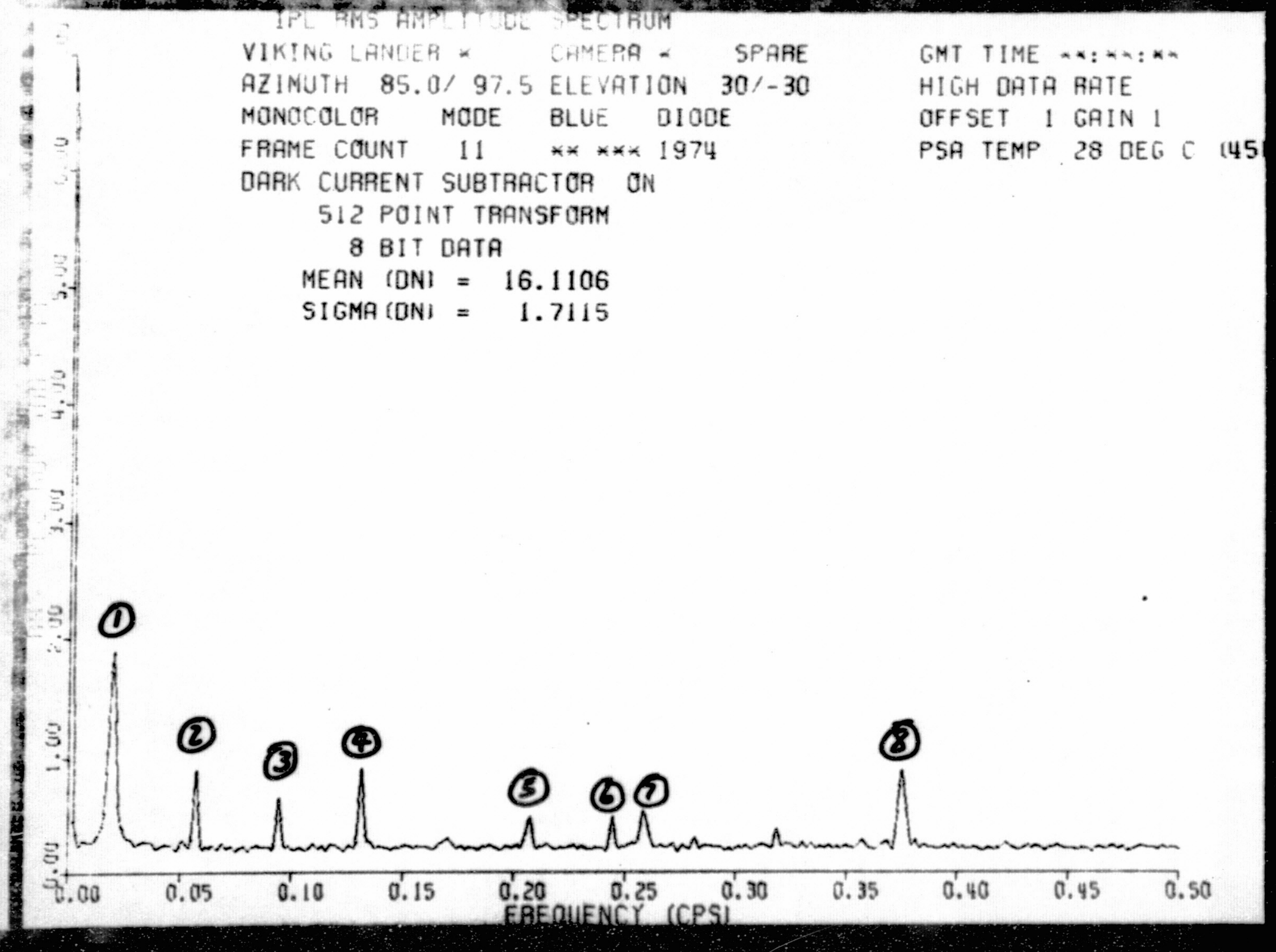
MEAN (DN) = 30.5379

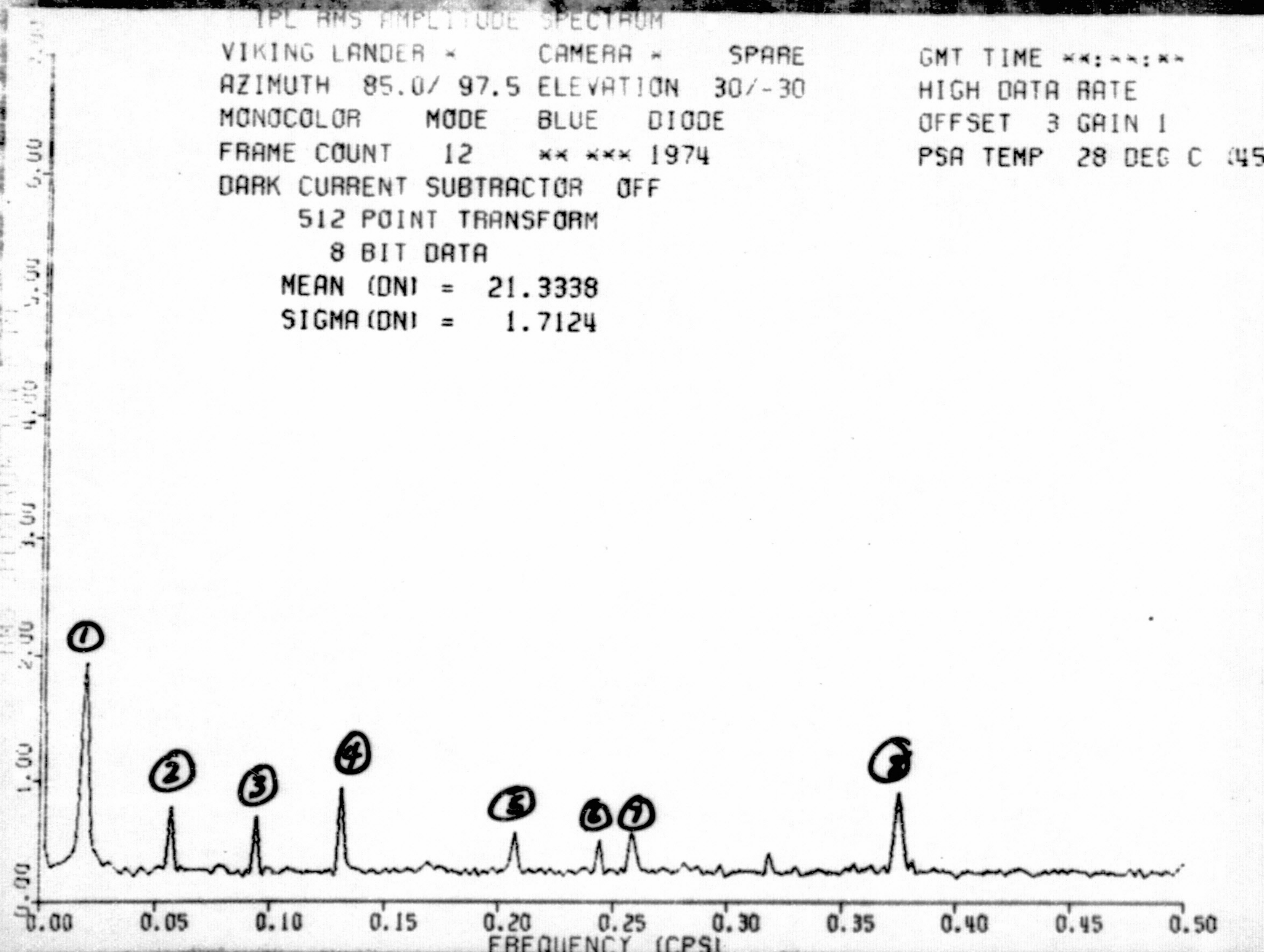
SIGMA (DN) = 1.3226



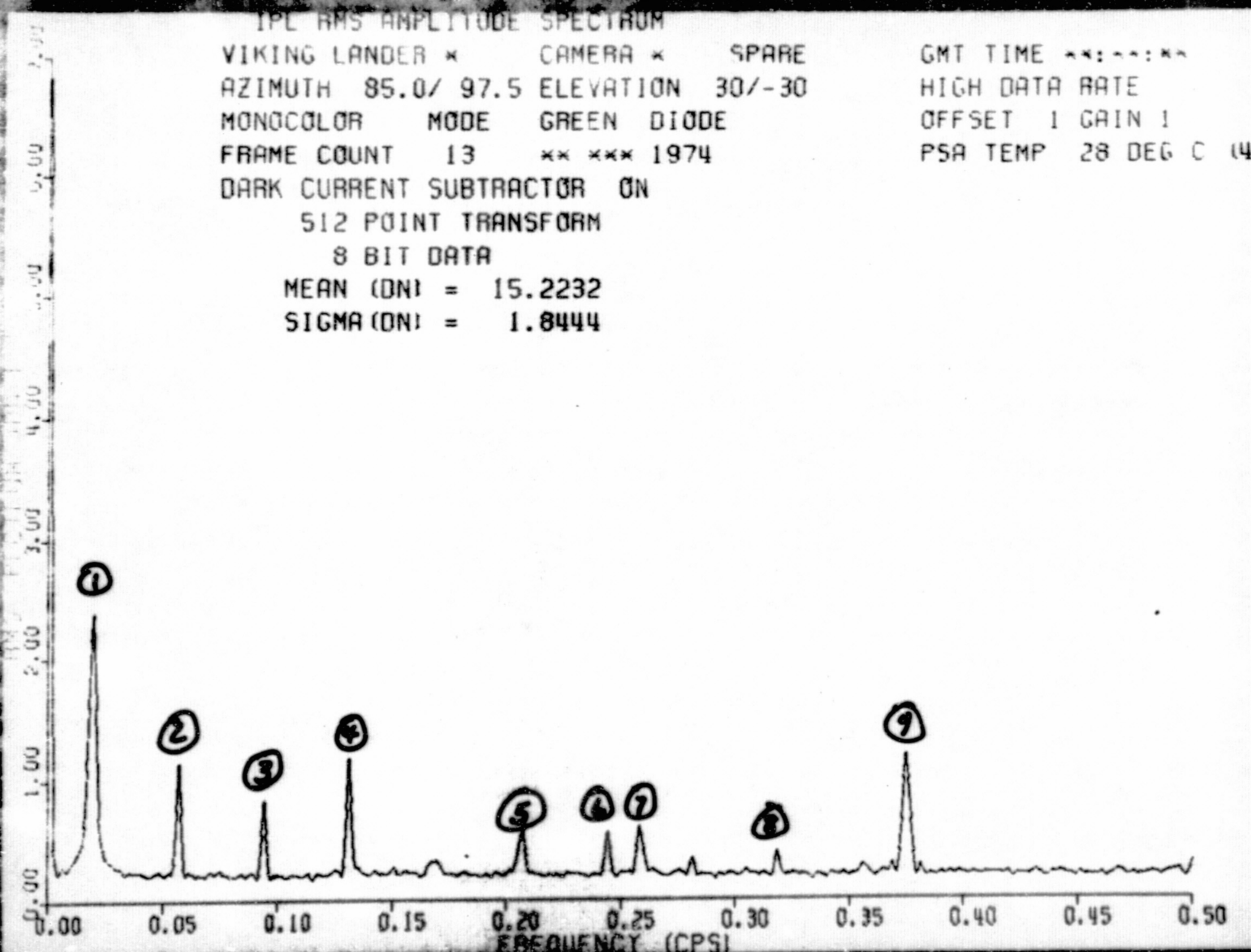

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 1 GAIN 1
FRAME COUNT 9 ** *** 1974
PSA TEMP 28 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.5441
SIGMA(DN) = 0.5055
1
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

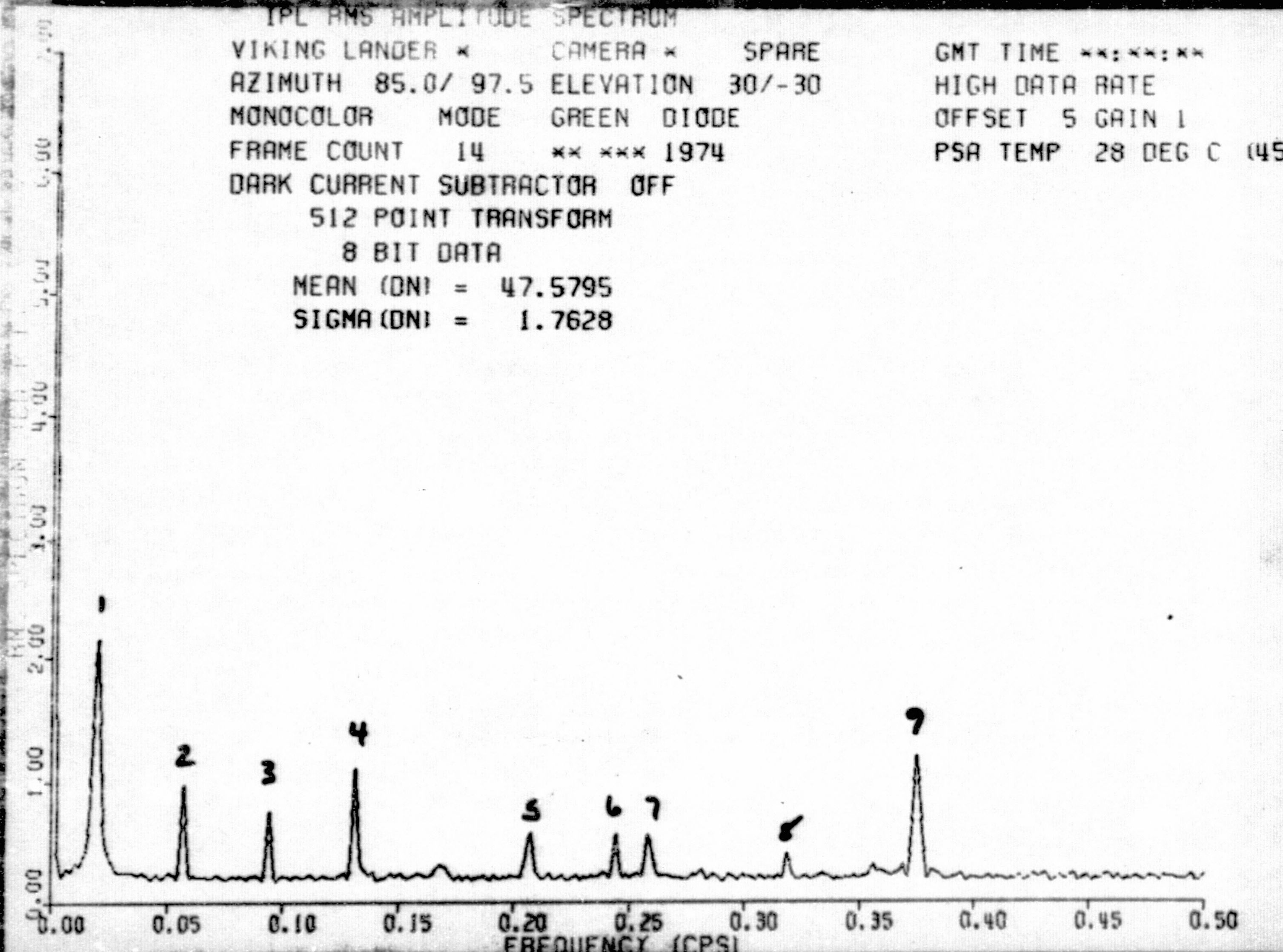

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5
ELEVATION 30/-30
HIGH DATA RATE
SURVEY MODE
SURVEY DIODE
OFFSET 5 GAIN 1
FRAME COUNT 10
** *** 1974
PSA TEMP 28 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 9.8458
SIGMA(DN) = 0.4228
1
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

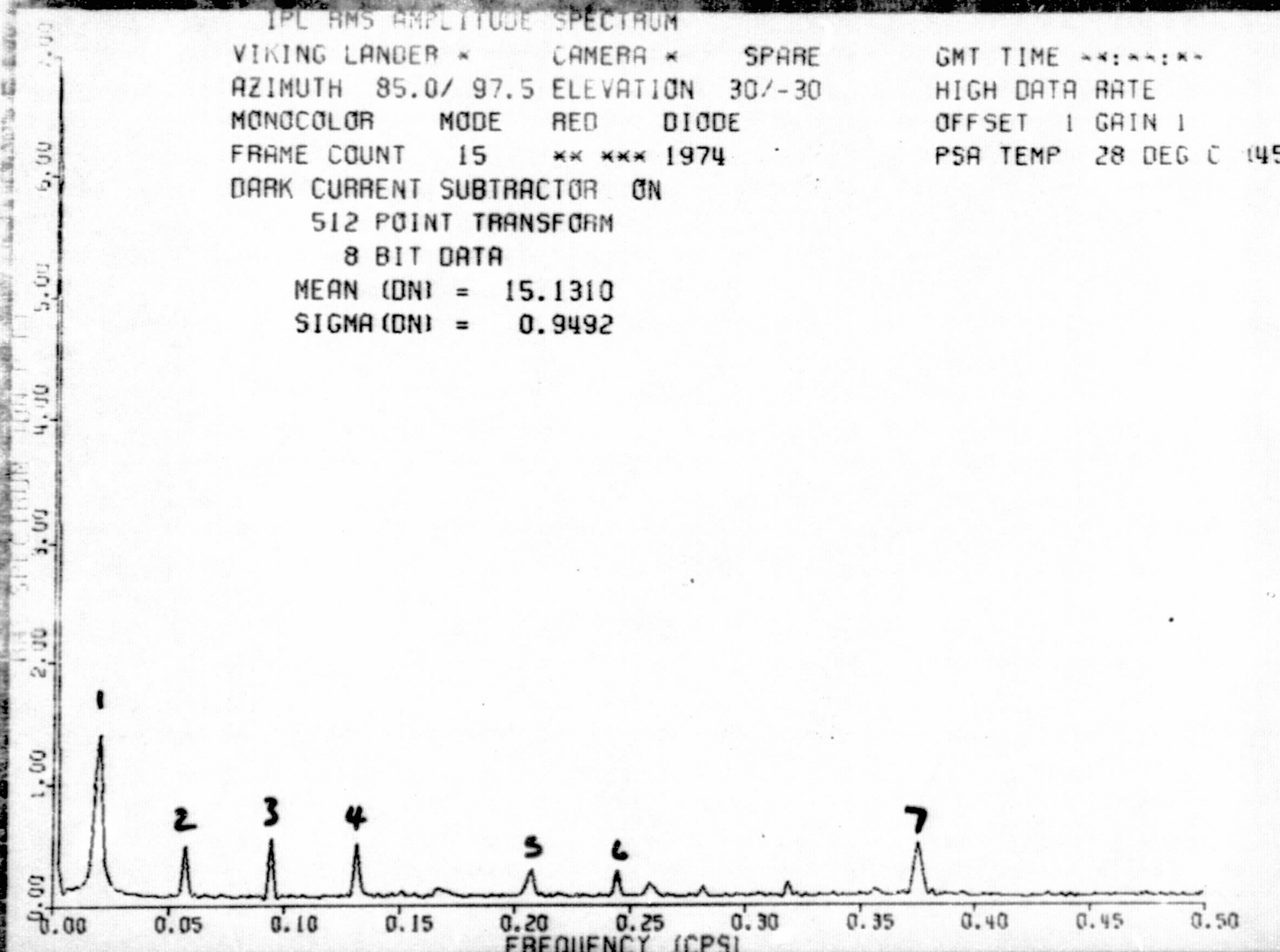

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   SPARE
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE BLUE DIODE
FRAME COUNT 11 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.1106
SIGMA(DN) = 1.7115
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)
1
2
3
4
5
6
7
8

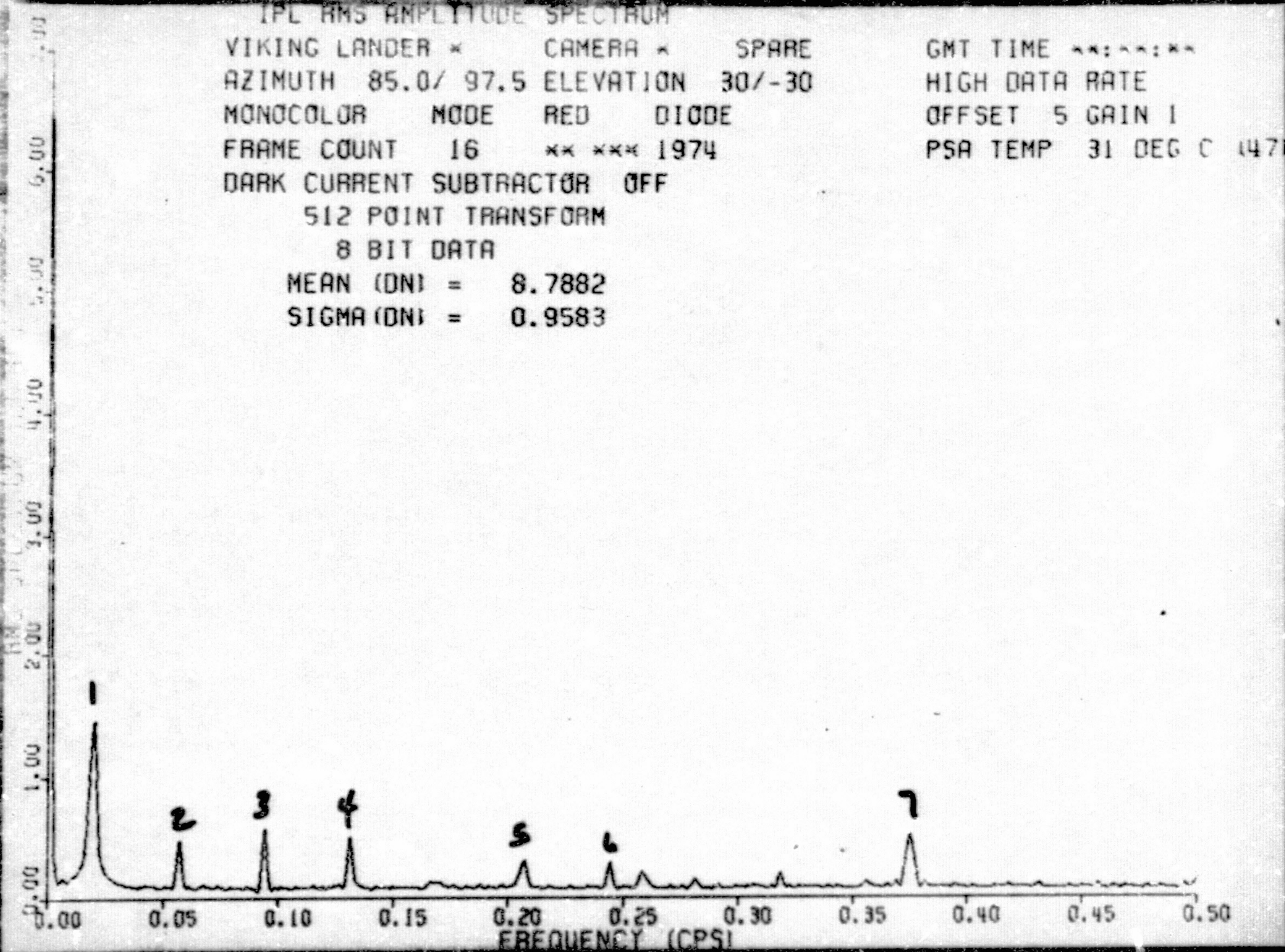


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE BLUE DIODE
FRAME COUNT 12 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 21.3338
SIGMA(DN) = 1.7124
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 28 DEG C
1
2
3
4
5
6
7
8
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

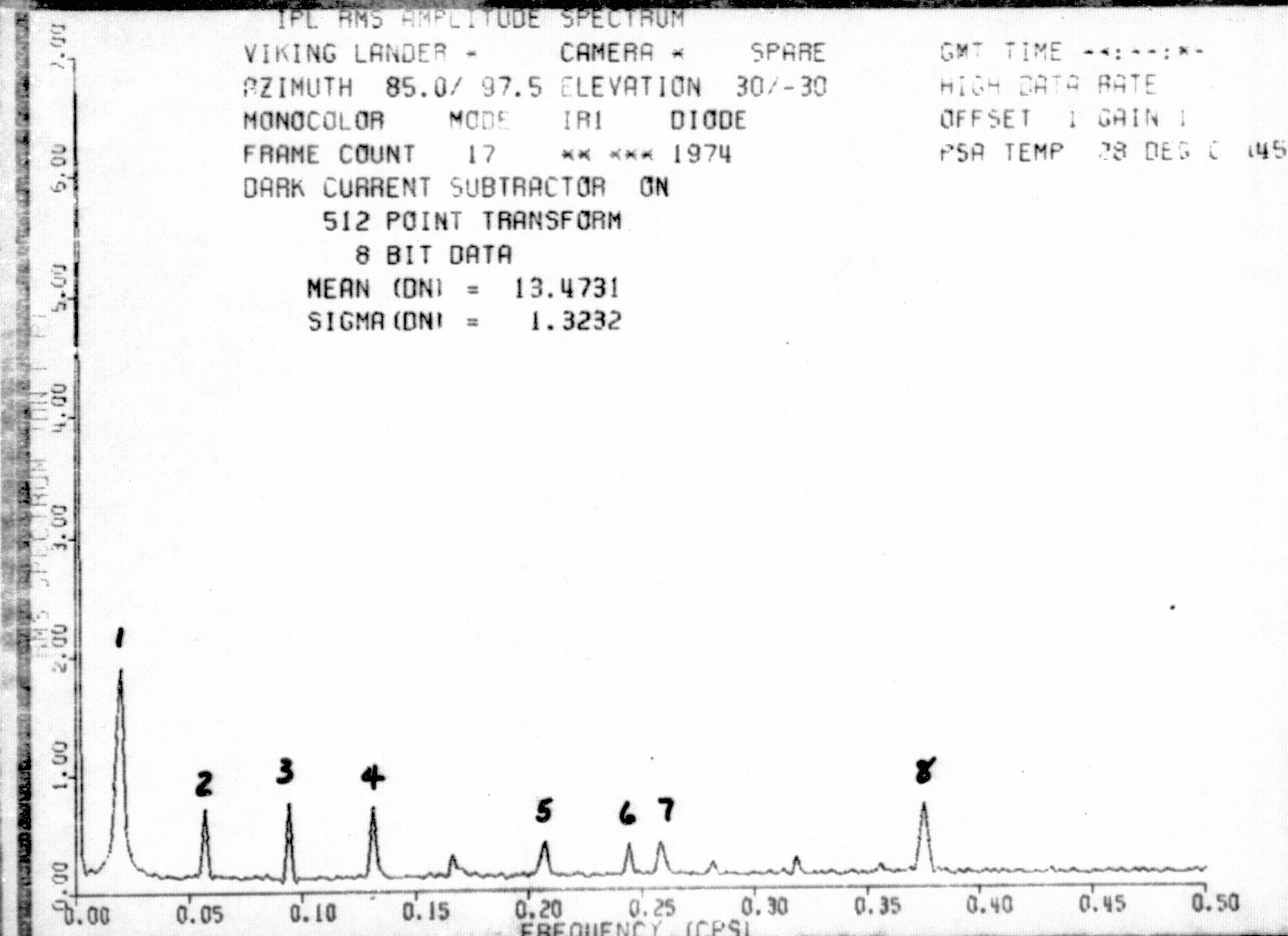

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE GREEN DIODE
FRAME COUNT 13 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.2232
SIGMA (DN) = 1.8444
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
0.00
1.00
2.00
3.00
4.00
5.00
1
2
3
4
5
6
7
8
9
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

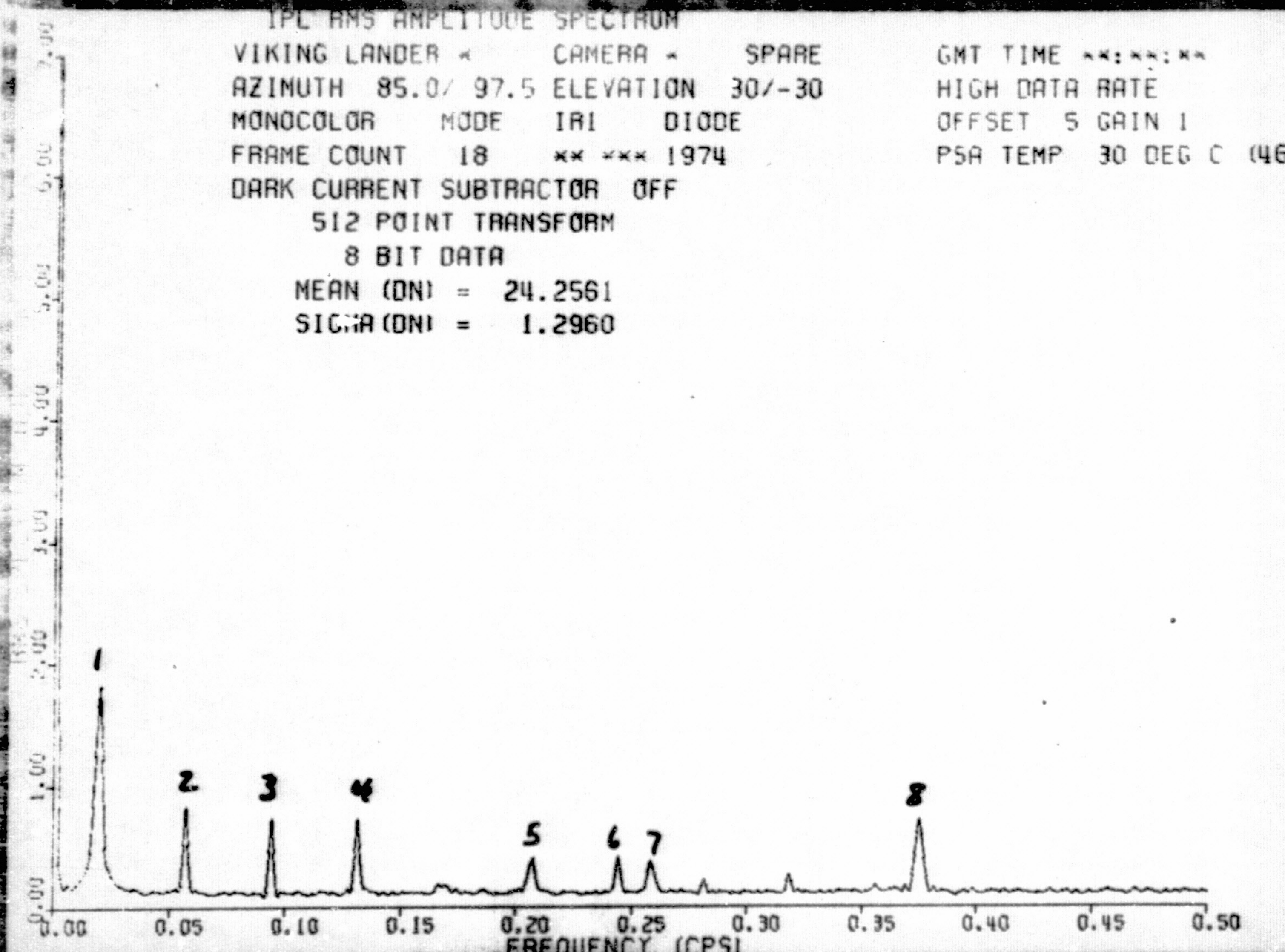

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE GREEN DIODE
OFFSET 5 GAIN 1
FRAME COUNT 14 ** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 47.5795
SIGMA(DN) = 1.7628
1
2
3
4
5
6
7
8
9
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

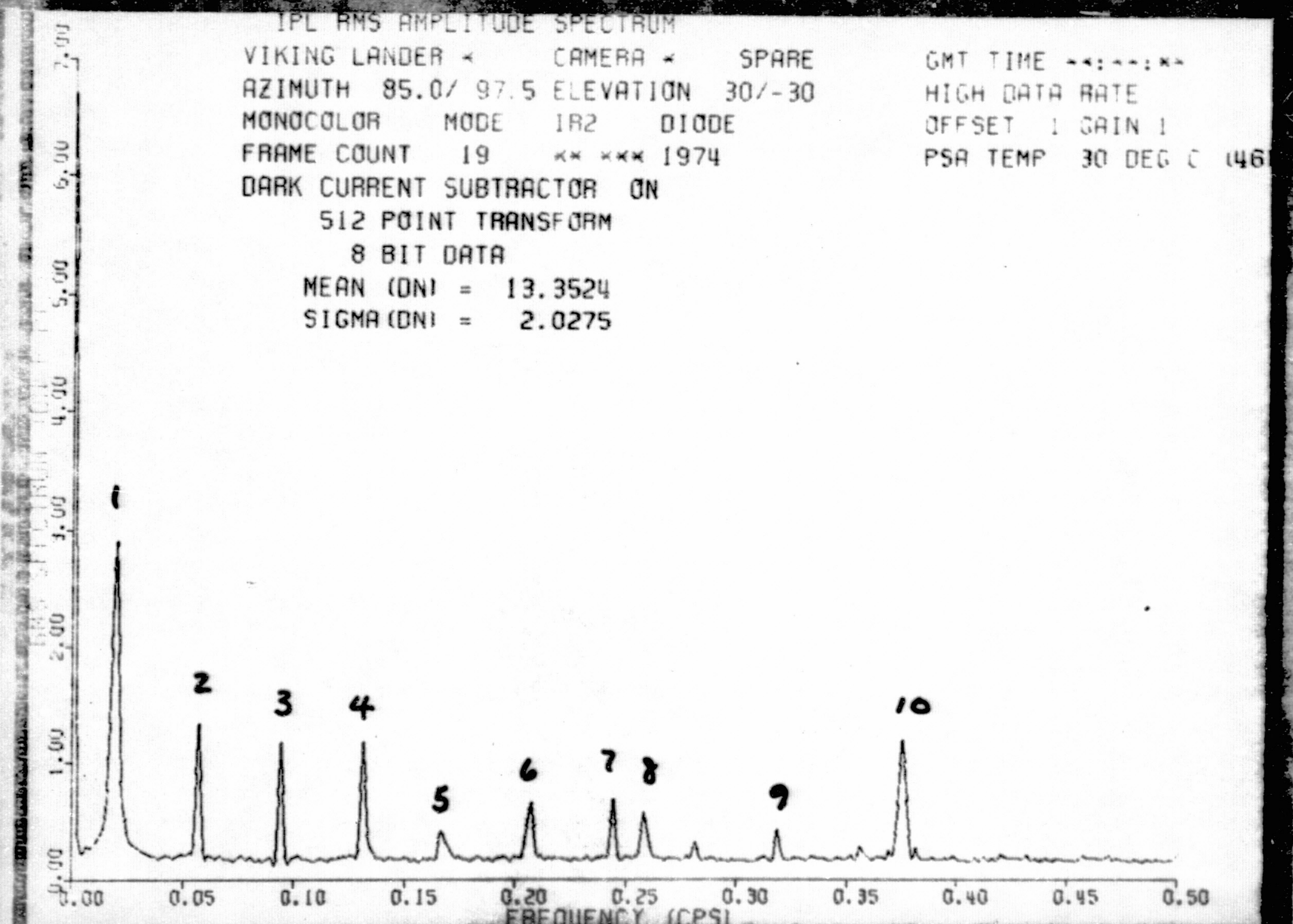

JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE RED DIODE
OFFSET 1 GAIN 1
FRAME COUNT 15 ** *** 1974
PSA TEMP 28 DEG C (45
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.1310
SIGMA(DN) = 0.9492
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

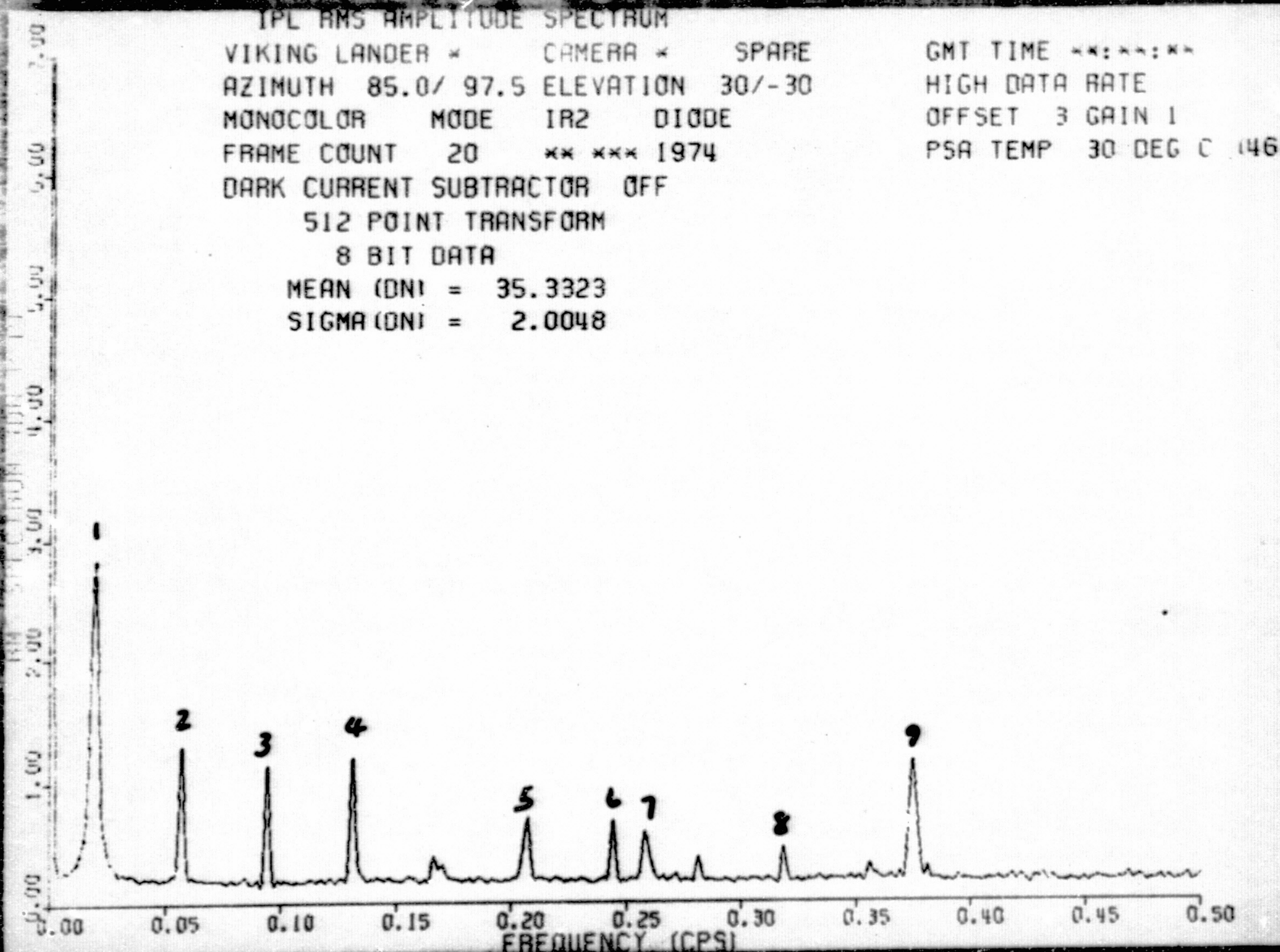


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5
ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE RED DIODE
OFFSET 5 GAIN 1
FRAME COUNT 16
** *** 1974
PSA TEMP 31 DEG C (47
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 8.7882
SIGMA(DN) = 0.9583
1
2
3
4
5
6
7
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER - CAMERA - SPARE
GMT TIME --:--:--
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR1 DIODE
OFFSET 1 GAIN 1
FRAME COUNT 17 ** *** 1974
PSA TEMP 28 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.4731
SIGMA (DN) = 1.3232
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5
ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR1 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 18
** *** 1974
PSA TEMP 30 DEG C (46
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 24.2561
SIGMA (DN) = 1.2960
RMS
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR2 DIODE
FRAME COUNT 19 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.3524
SIGMA (DN) = 2.0275
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
7
8
9
10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR2 DIODE
OFFSET 3 GAIN 1
FRAME COUNT 20 ** *** 1974
PSA TEMP 30 DEG C (46
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 35.3323
SIGMA(DN) = 2.0048
1
2
3
4
5
6
7
8
9
0.00
1.00
2.00
3.00
4.00
5.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

IPL RMS AMPLITUDE SPECTRUM

VIKING LANDER * CAMERA * SPARE GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30 HIGH DATA RATE
MONOCOLOR MODE IR3 DIODE OFFSET 1 GAIN 1
FRAME COUNT 21 ** *** 1974 PSA TEMP 31 DEG C (47

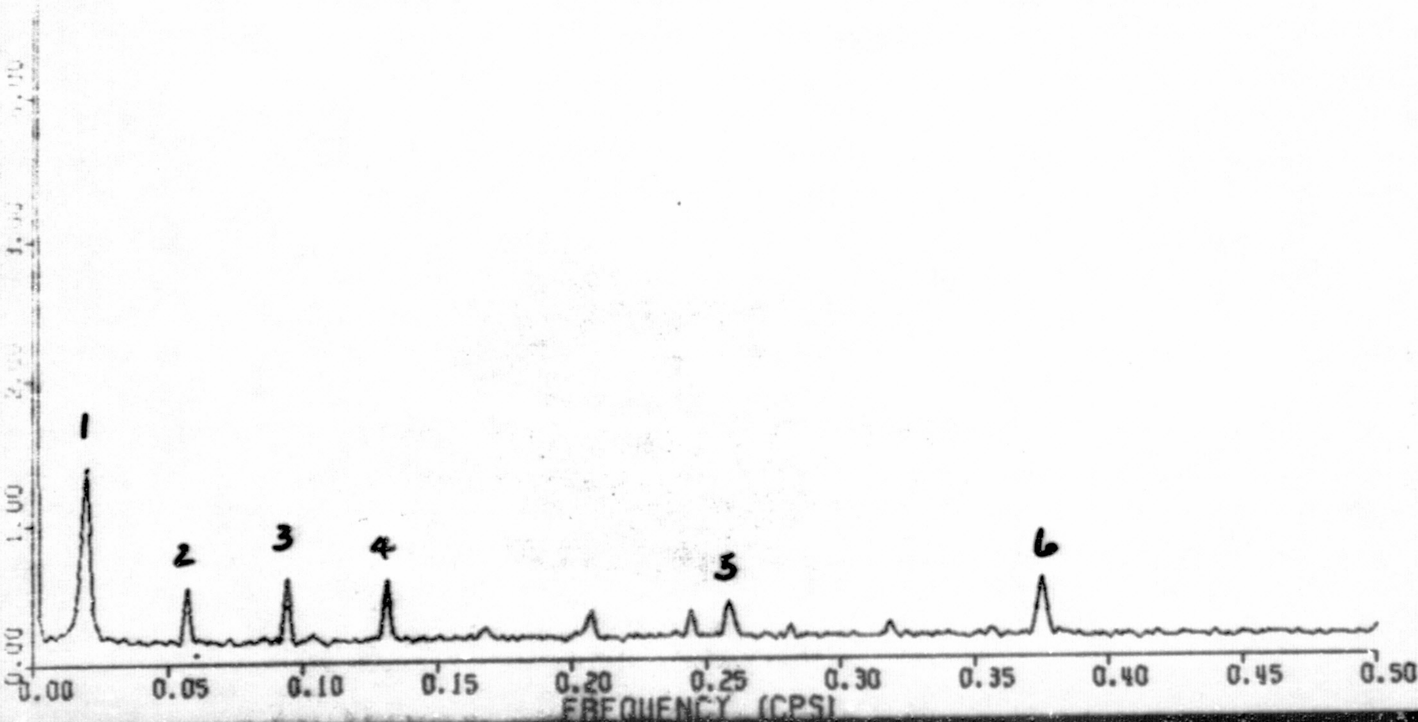
DARK CURRENT SUBTRACTOR ON

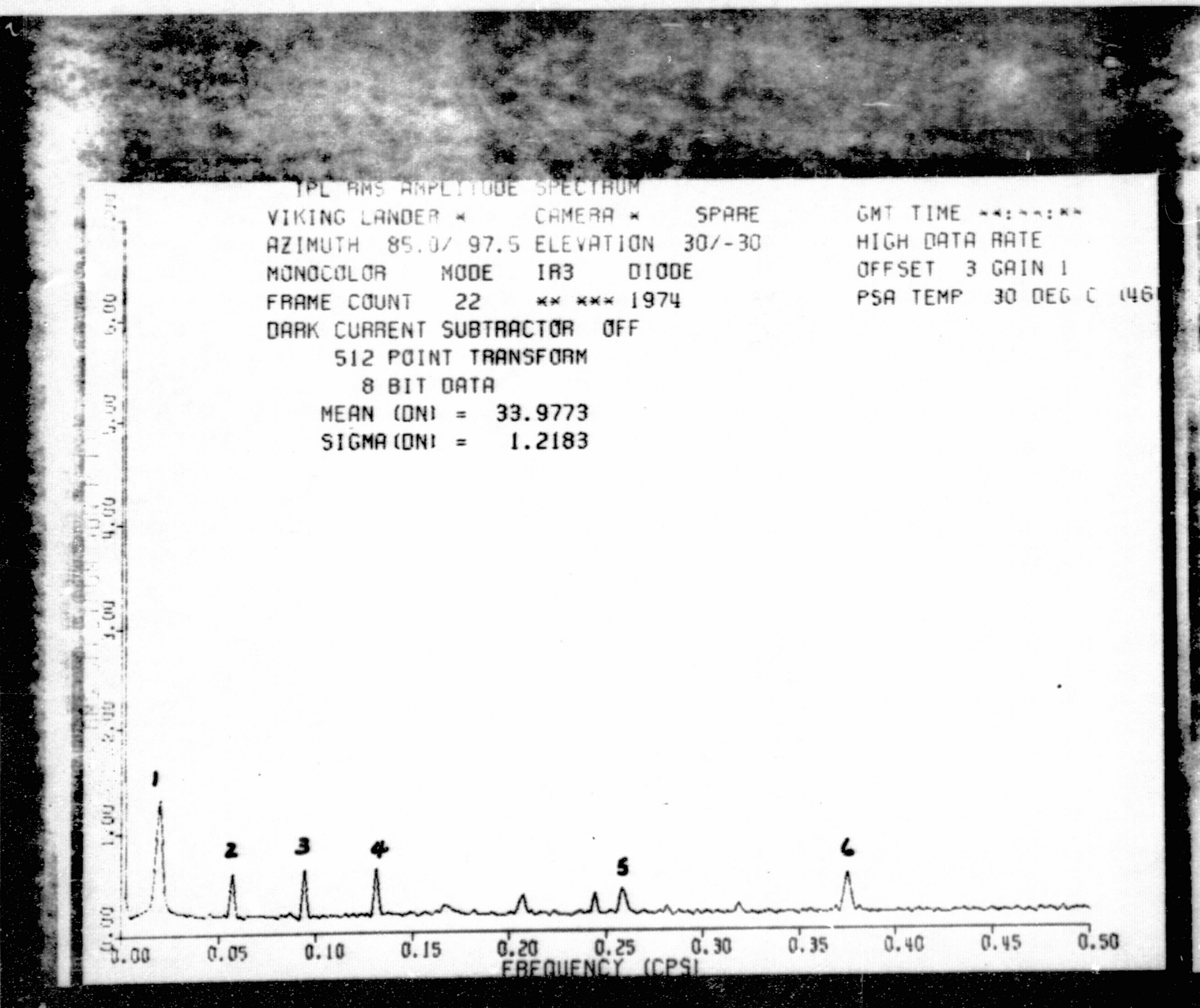
512 POINT TRANSFORM

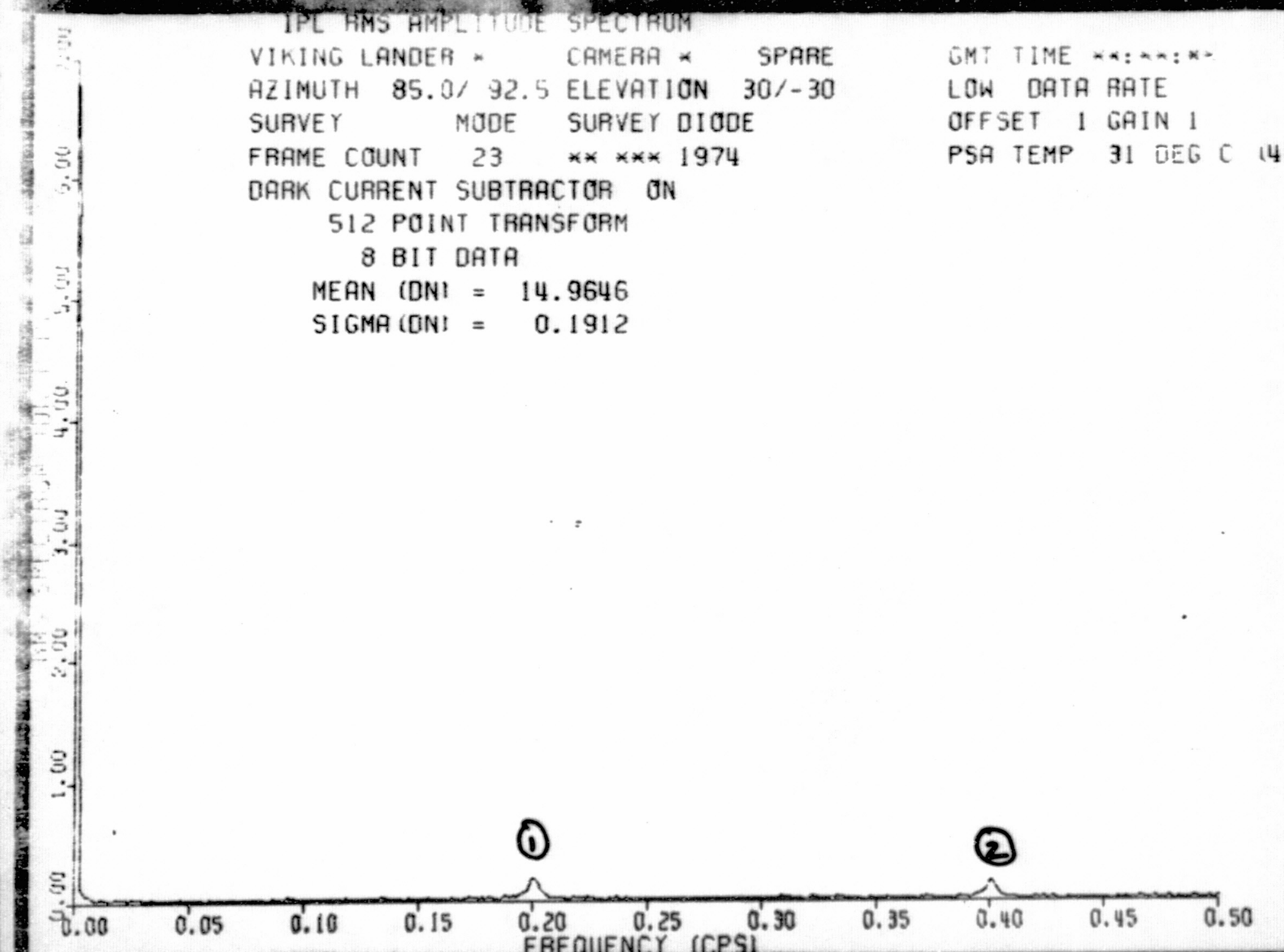
8 BIT DATA

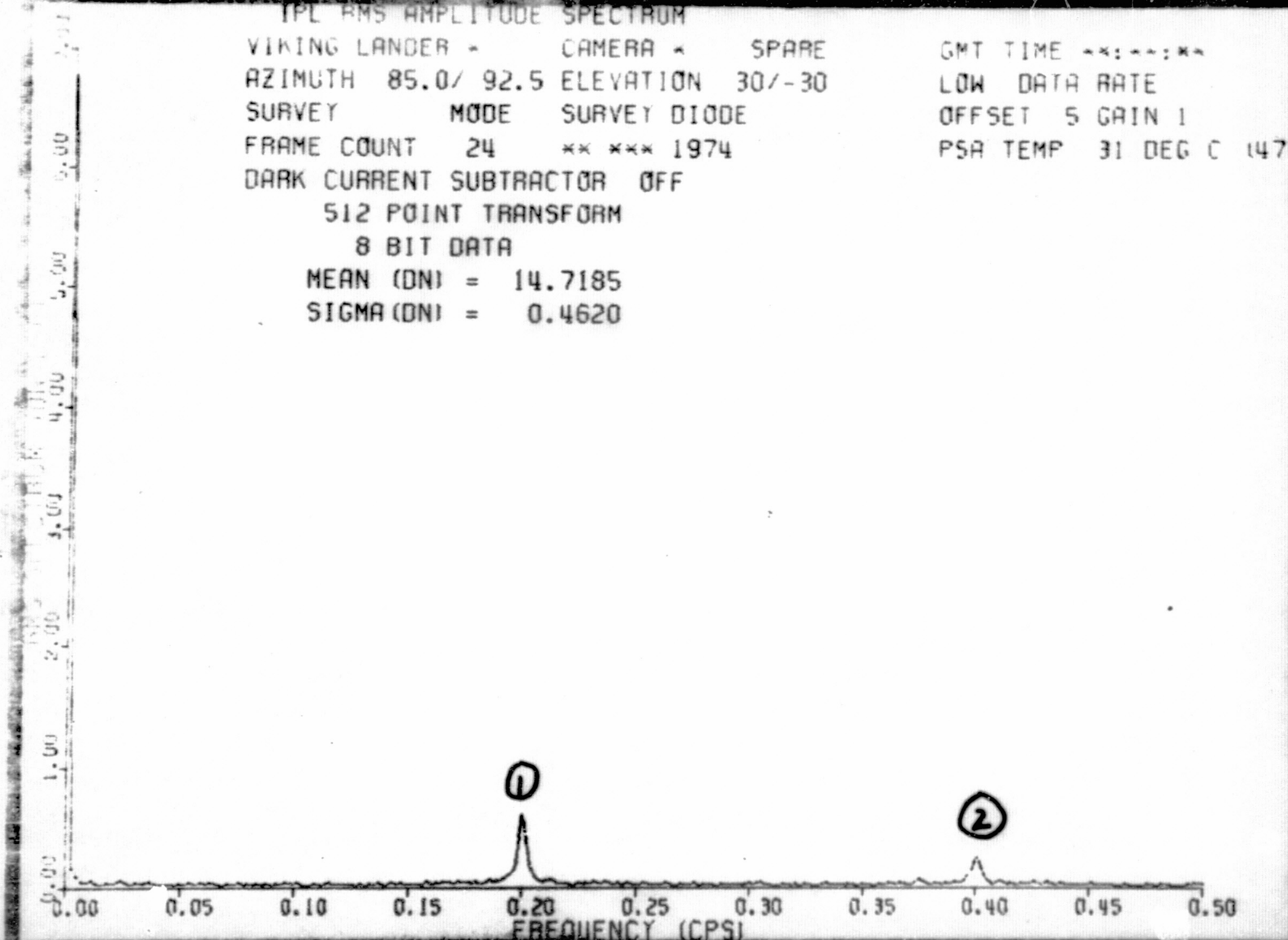
MEAN (DN) = 14.7332

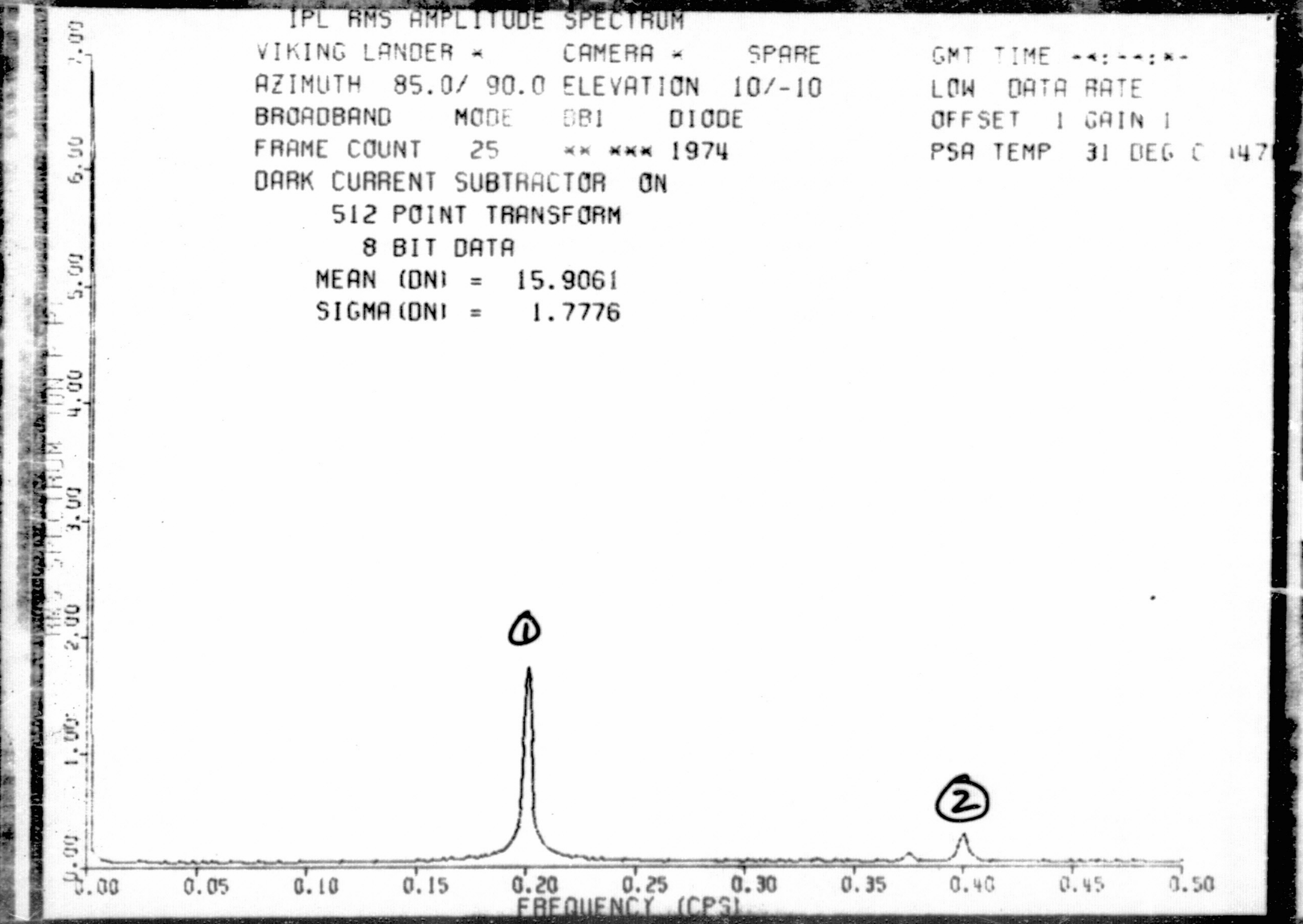
SIGMA(DN) = 1.2203

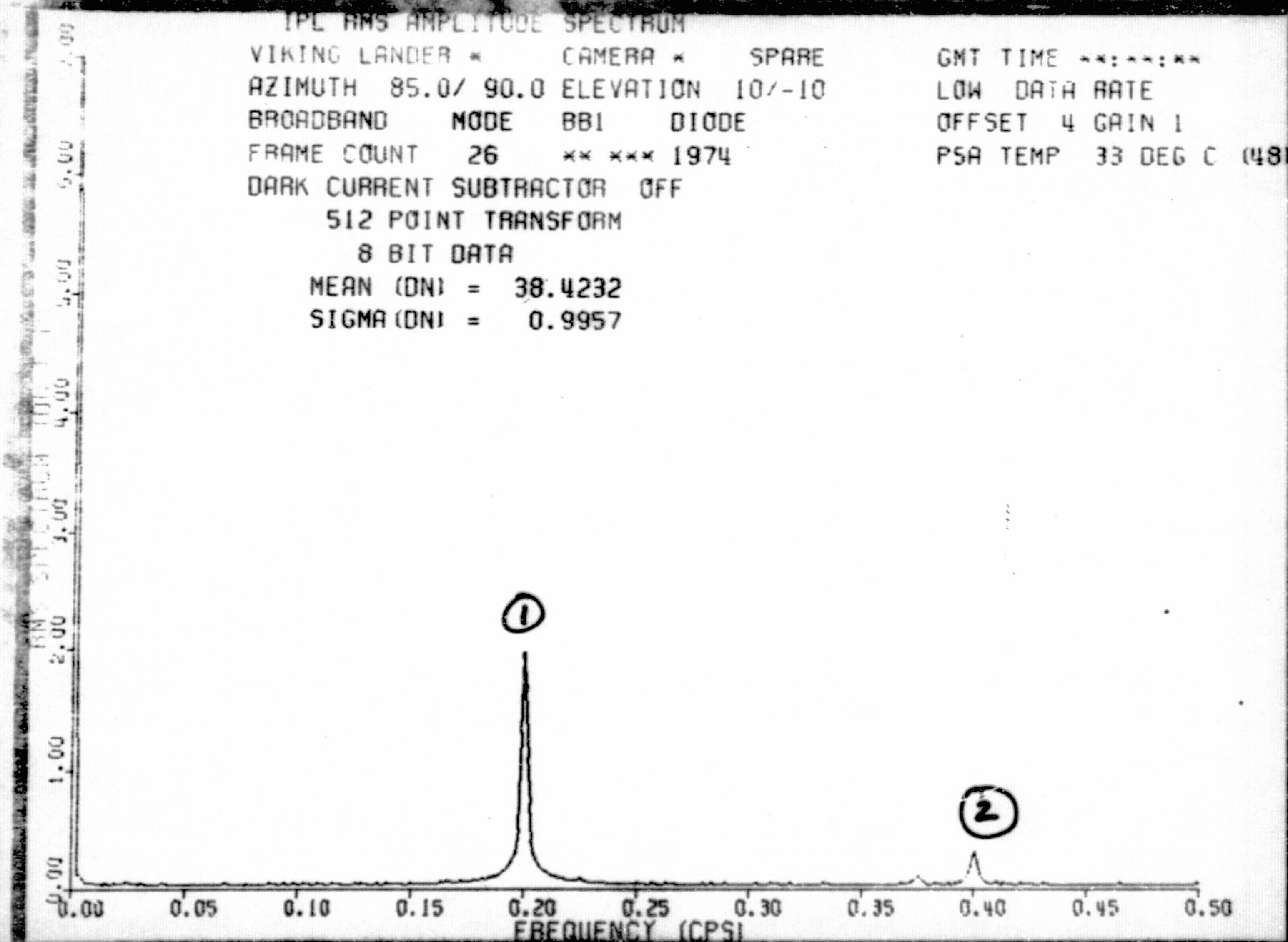


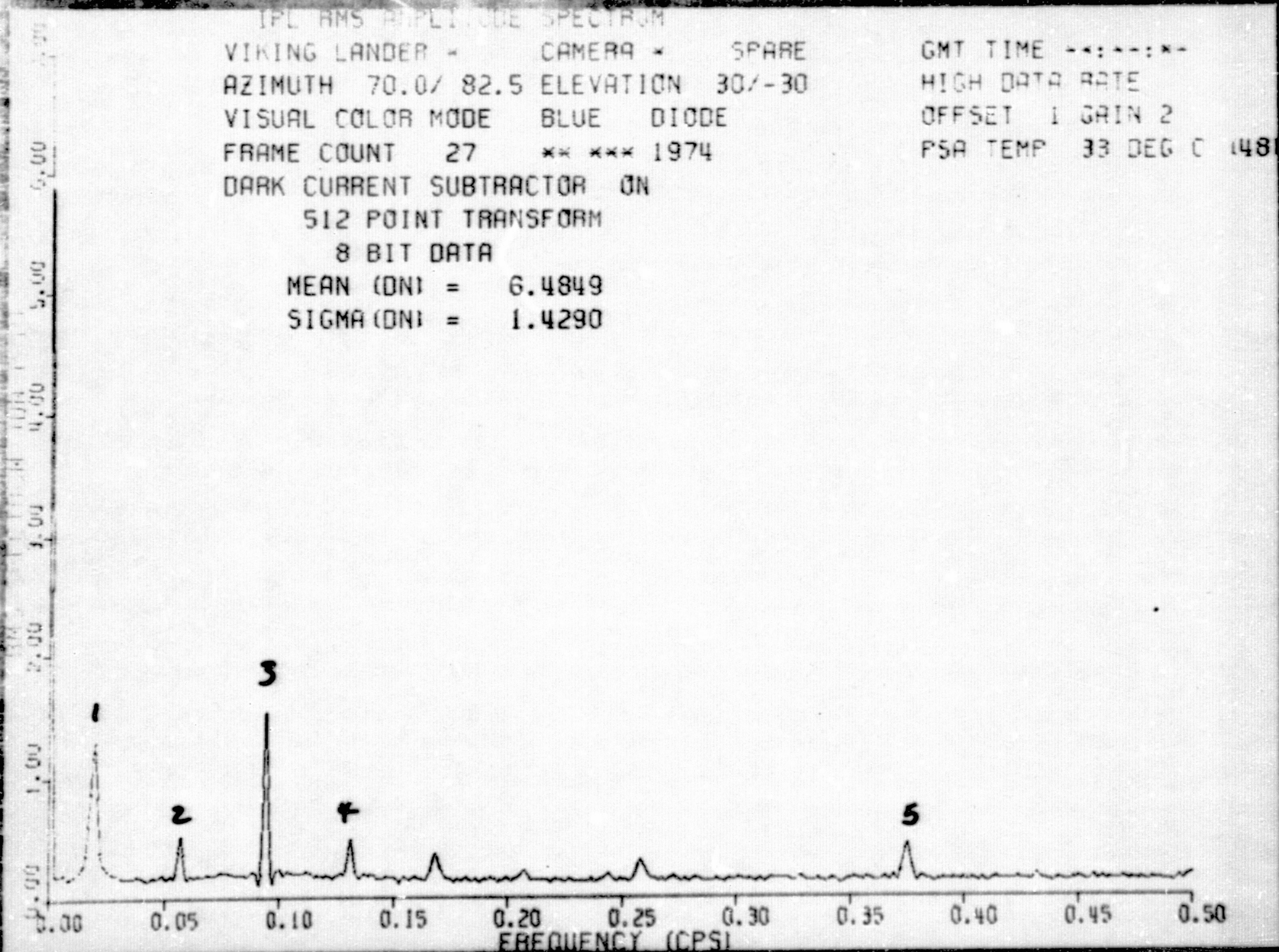

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   SPARE
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR   MODE   IR3   DIODE
FRAME COUNT 22   ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 33.9773
SIGMA(DN) = 1.2183
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 1
PSA TEMP 30 DEG C
1
2
3
4
5
6
0.00
1.00
2.00
3.00
4.00
5.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
LOW DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 1 GAIN 1
FRAME COUNT 23 ** *** 1974
PSA TEMP 31 DEG C (47
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.9646
SIGMA(DN) = 0.1912
1
2
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

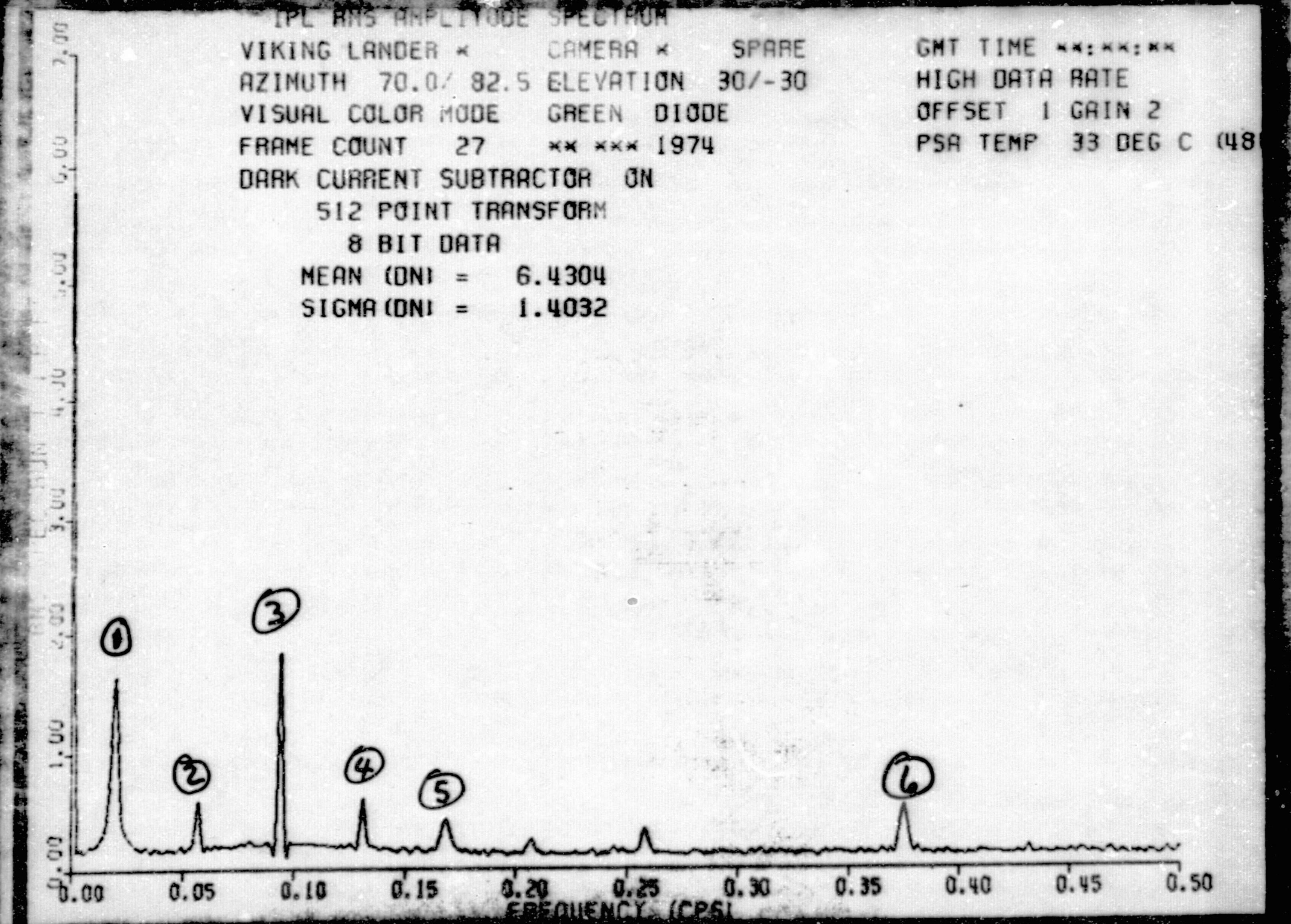

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 85.0/ 92.5
ELEVATION 30/-30
LOW DATA RATE
SURVEY MODE
SURVEY DIODE
OFFSET 5 GAIN 1
FRAME COUNT 24
** *** 1974
PSA TEMP 31 DEG C (47
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.7185
SIGMA(DN) = 0.4620
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
1
2

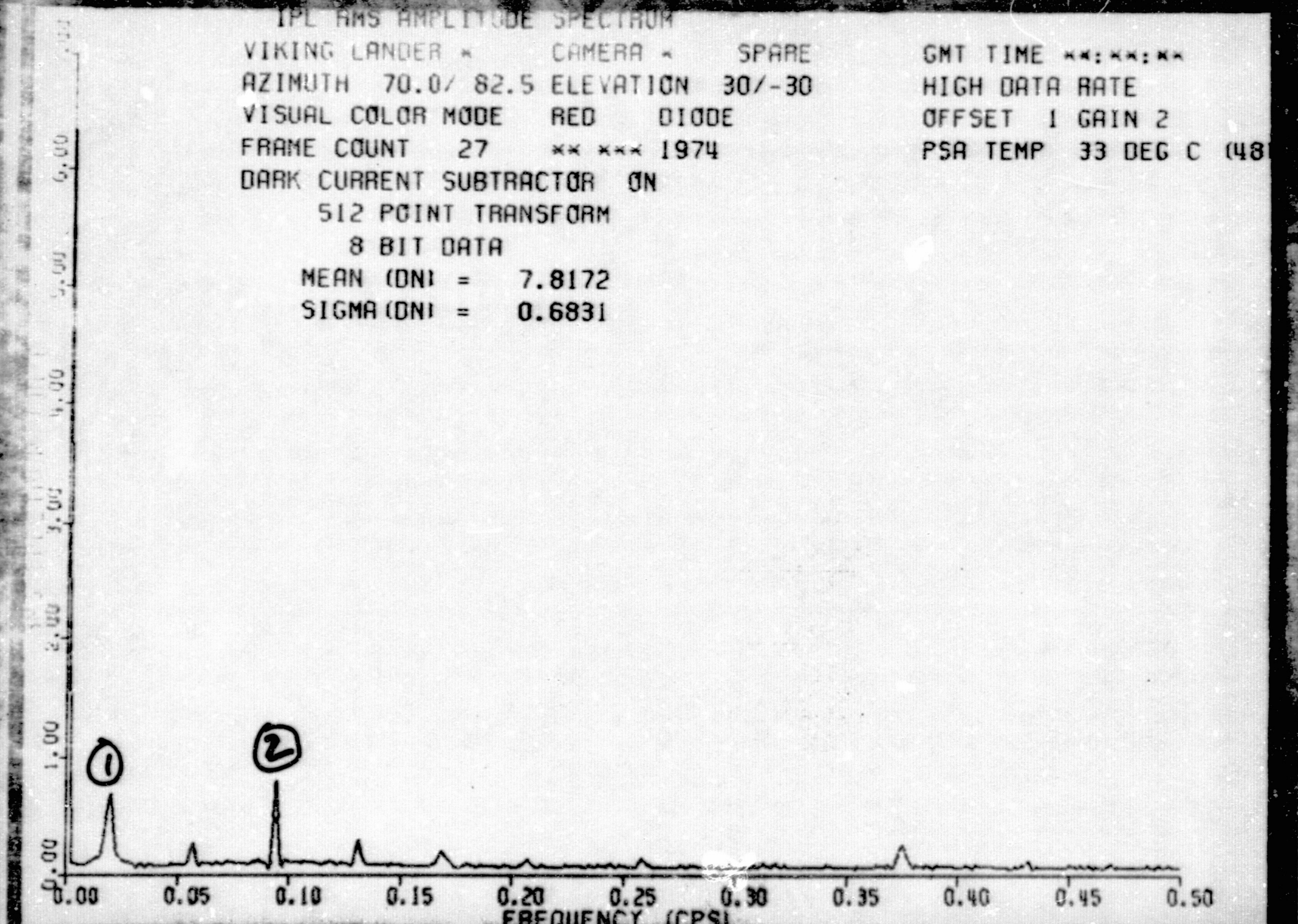

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 85.0/ 90.0 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 25 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.9061
SIGMA(DN) = 1.7776
GMT TIME --:--:--
LOW DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 31 DEG C
①
②
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

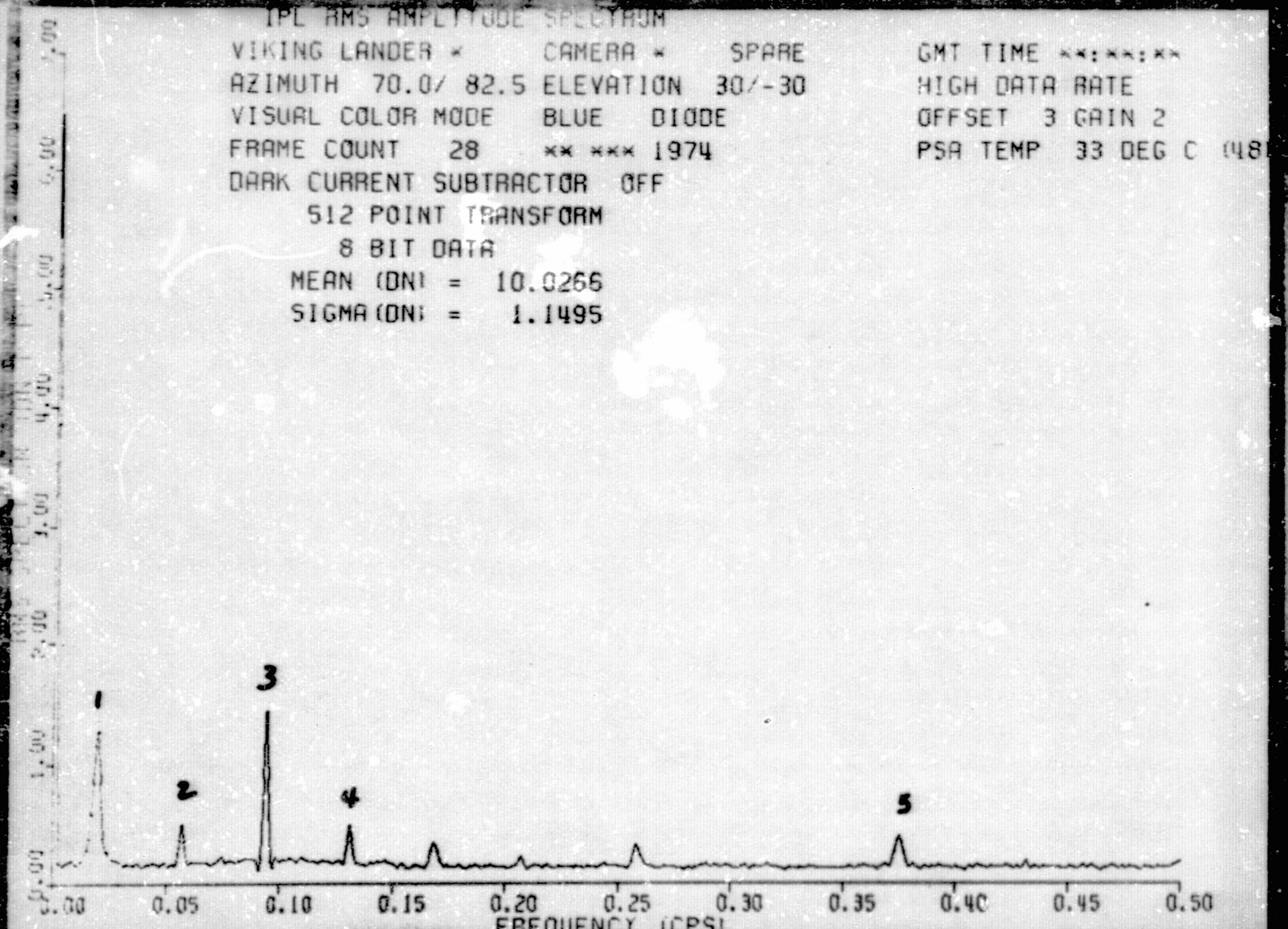

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 85.0/ 90.0 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 26 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 38.4232
SIGMA (DN) = 0.9957
GMT TIME **:**:**
LOW DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 33 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)
1
2



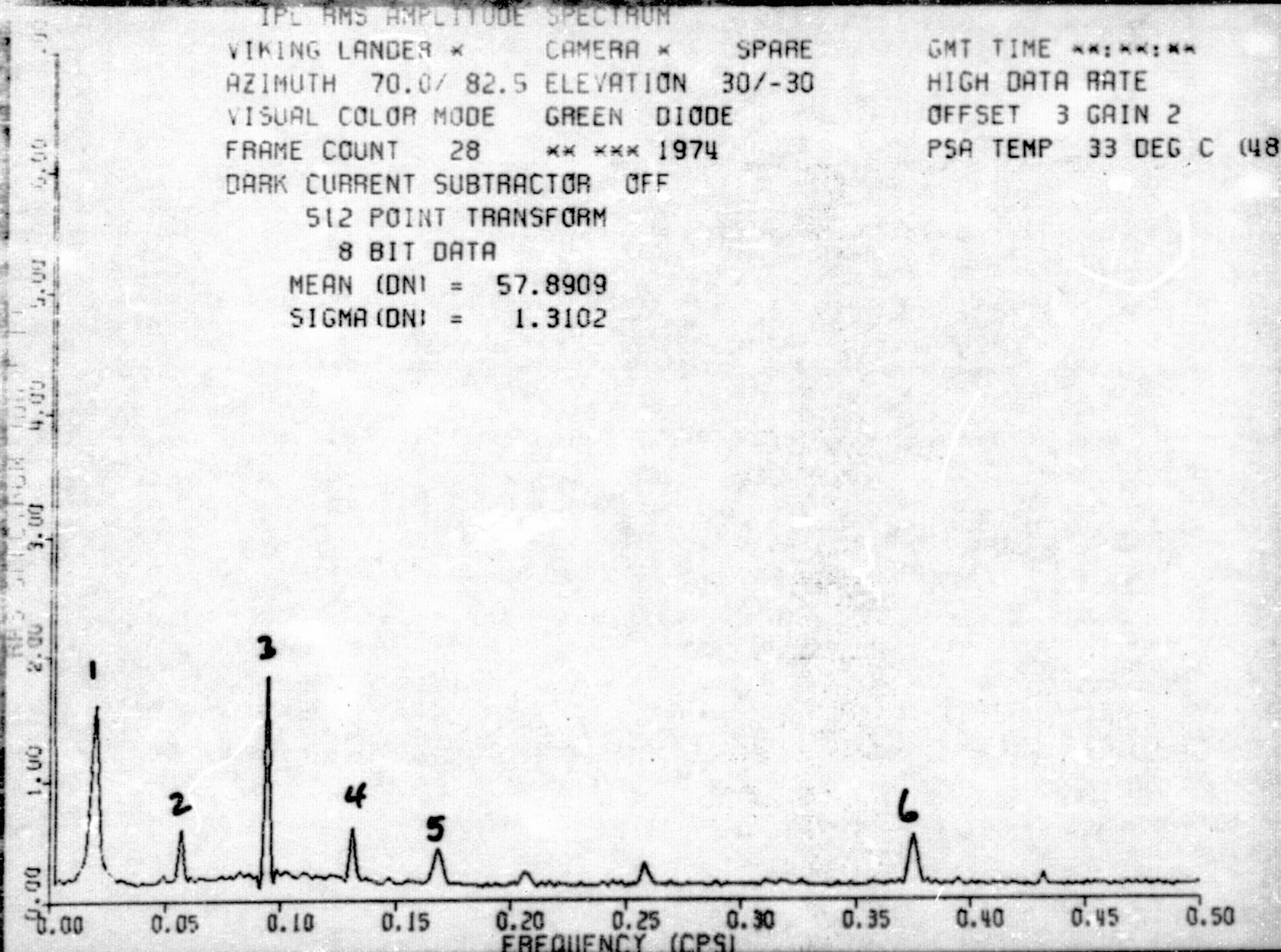
VIKING LANDER * CAMERA * SPARE
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
VISUAL COLOR MODE BLUE DIODE
FRAME COUNT 27 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 6.4849
SIGMA(DN) = 1.4290
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 2
PSA TEMP 33 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE GREEN DIODE
OFFSET 1 GAIN 2
FRAME COUNT 27 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 6.4304
SIGMA(DN) = 1.4032
0.00
1.00
2.00
3.00
4.00
1
2
3
4
5
6
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

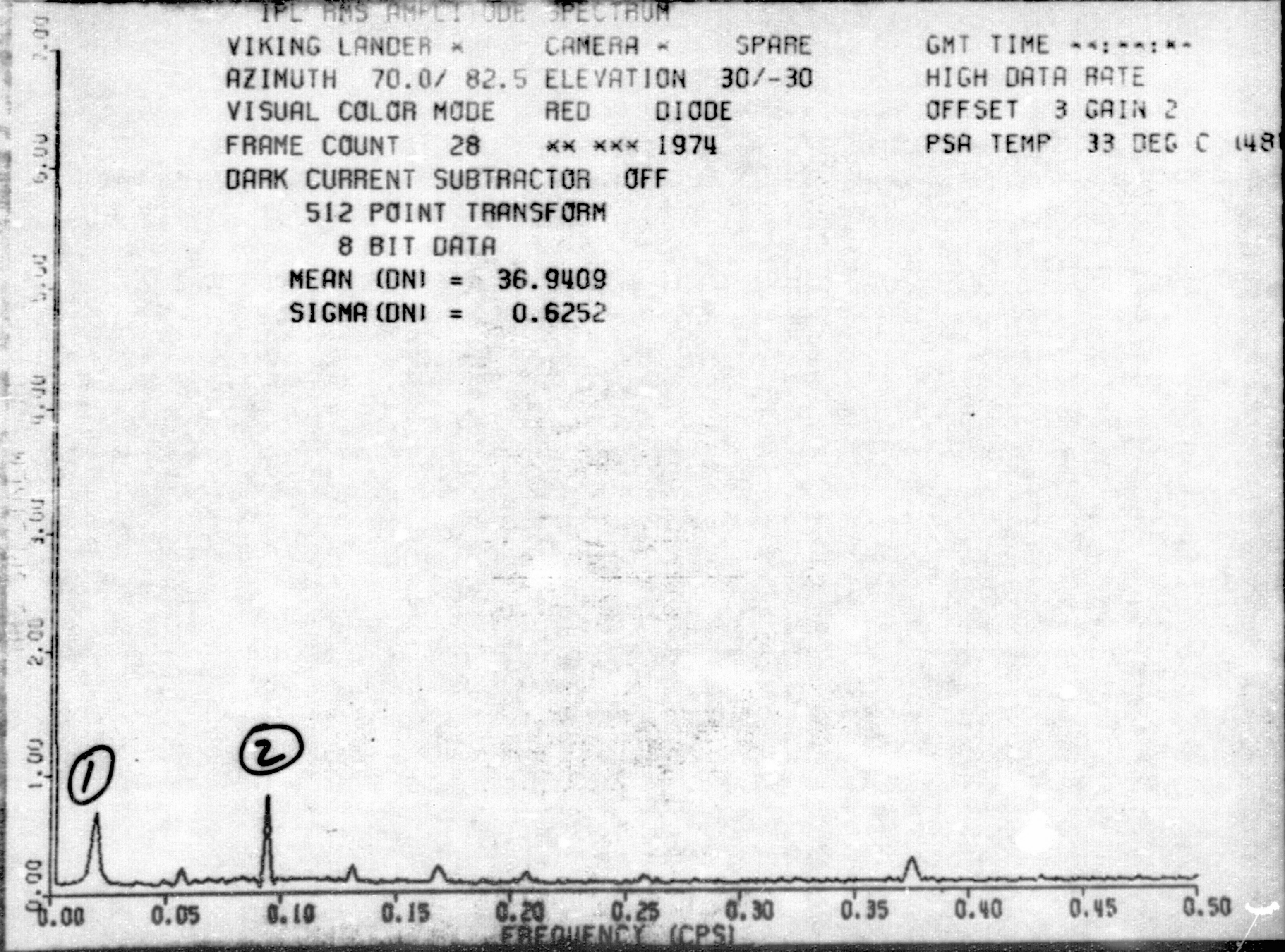

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
RED
DIODE
OFFSET 1 GAIN 2
FRAME COUNT 27
** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 7.8172
SIGMA (DN) = 0.6831
6.00
5.00
4.00
3.00
2.00
1.00
0.00
①
②
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE BLUE DIODE
OFFSET 3 GAIN 2
FRAME COUNT 28 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 10.0266
SIGMA(DN) = 1.1495
1
2
3
4
5
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
1.00
2.00
3.00
4.00
5.00
6.00
7.00



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE GREEN DIODE
OFFSET 3 GAIN 2
FRAME COUNT 28 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 57.8909
SIGMA(DN) = 1.3102
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE RED DIODE
OFFSET 3 GAIN 2
FRAME COUNT 28 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 36.9409
SIGMA(DN) = 0.6252
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

IPL RMS AMPLITUDE SPECTRUM

VIKING LANDER * CAMERA * SPARE GMT TIME **:**:**

AZIMUTH 70.0/ 82.5 ELEVATION 30/-30 HIGH DATA RATE

IR COLOR MODE IR3 DIODE ØFFSET 1 GAIN 2

FRAME COUNT 29 ** *** 1974 PSA TEMP 33 DEG C (48

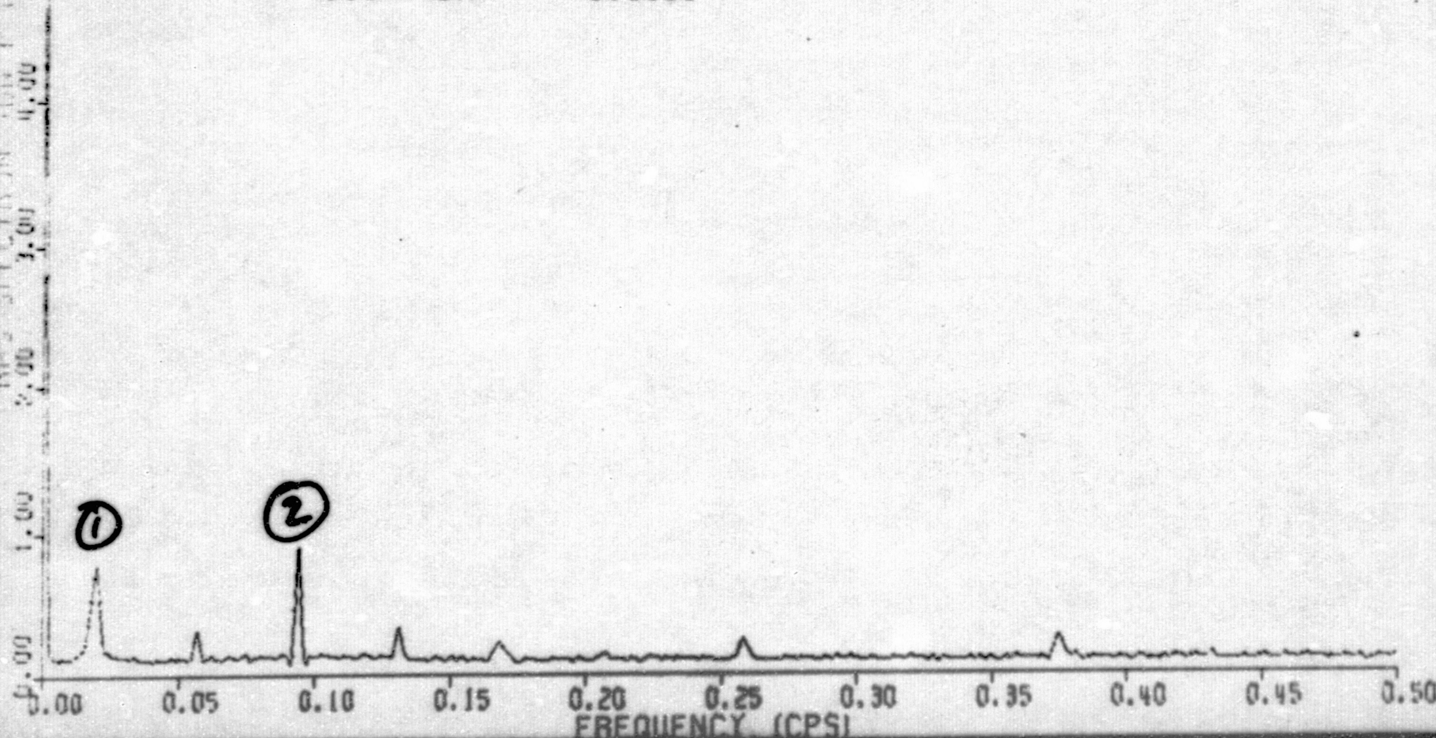
DARK CURRENT SUBTRACTOR ØN

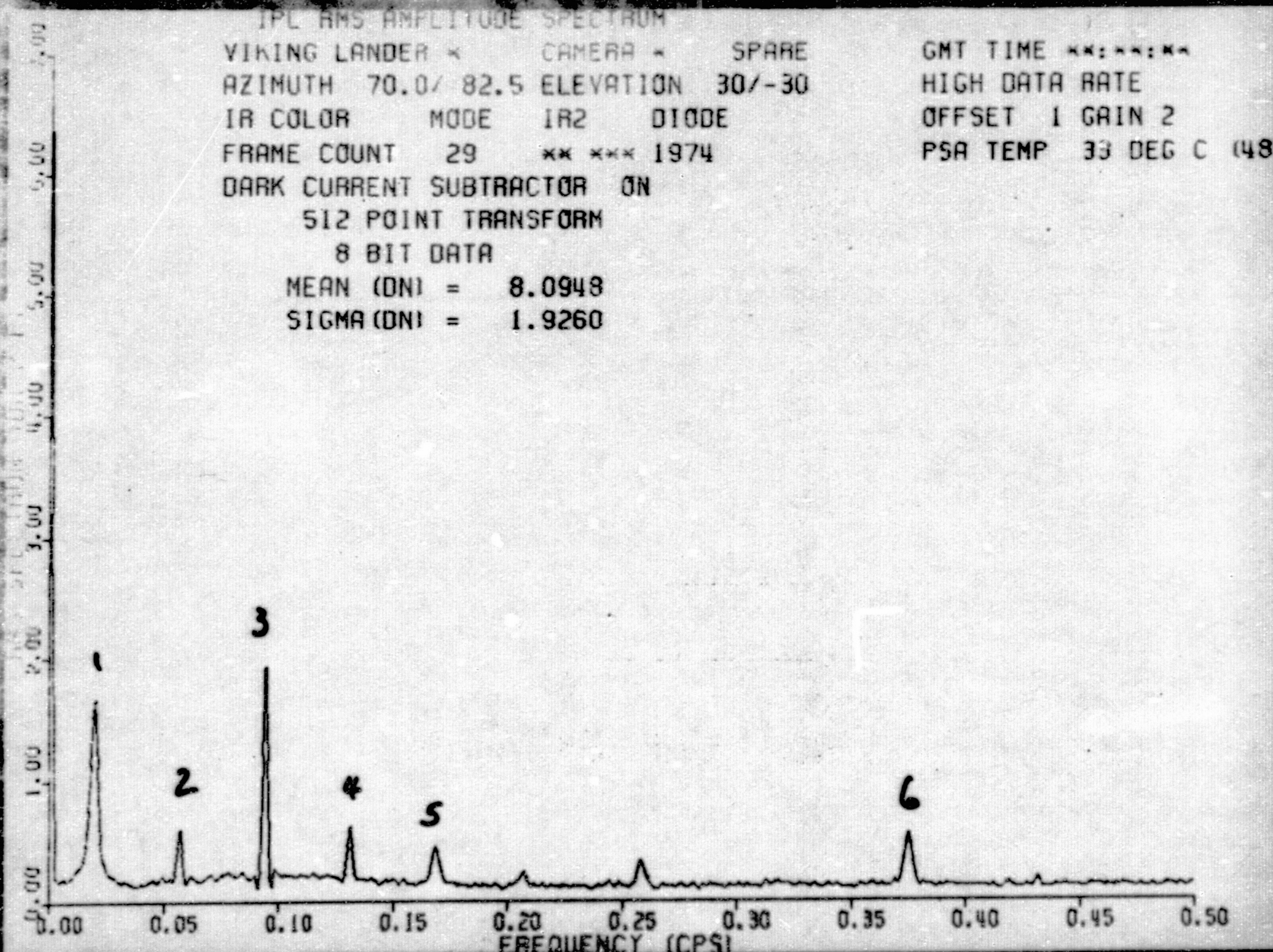
512 POINT TRANSFORM

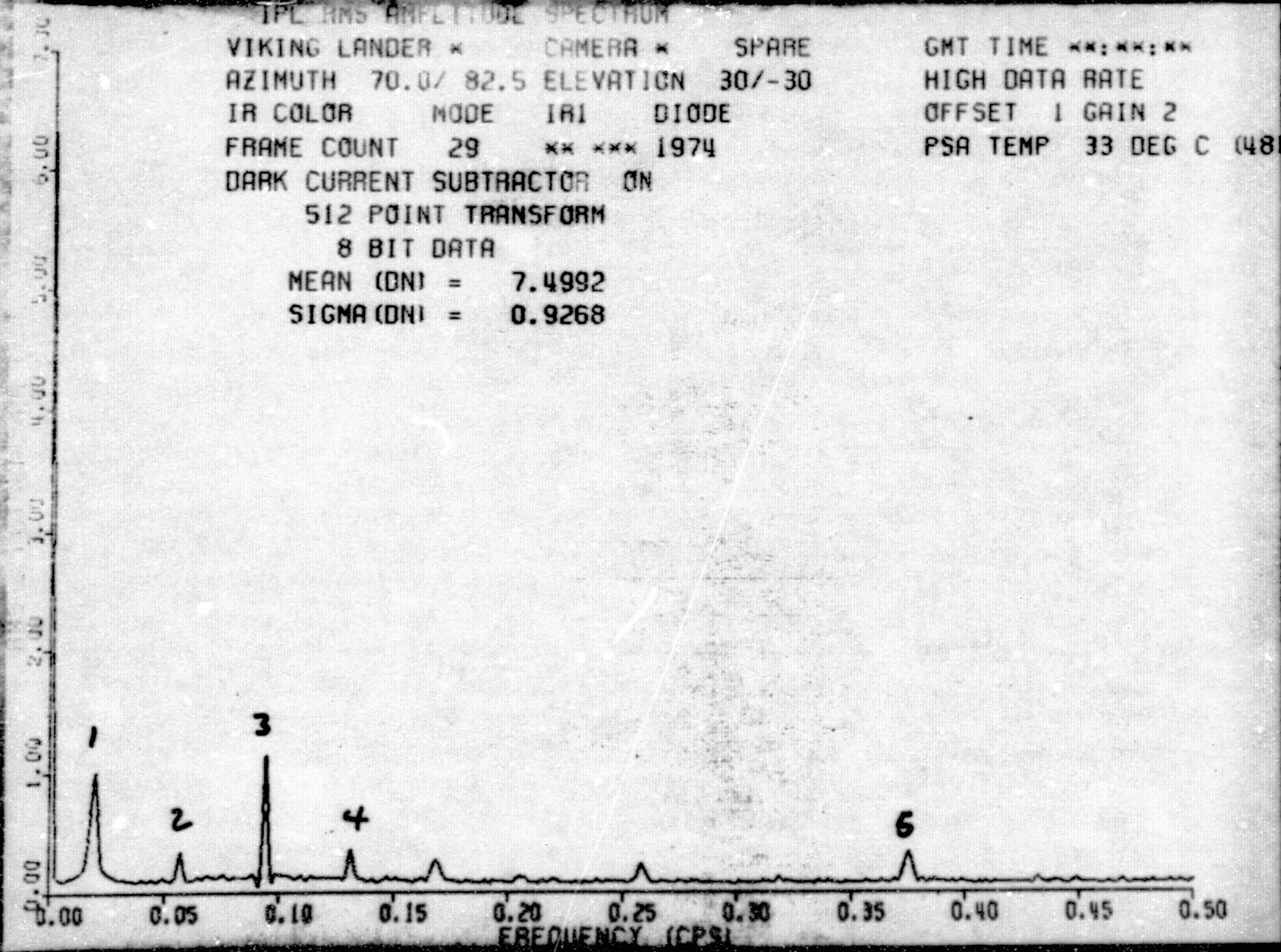
8 BIT DATA

MEAN (DN) = 7.1960

SIGMA(DN) = 0.9168




JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
IR COLOR MODE IR2 DIODE
OFFSET 1 GAIN 2
FRAME COUNT 29 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 8.0948
SIGMA (DN) = 1.9260
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
IR COLOR MODE IR1 DIODE
OFFSET 1 GAIN 2
FRAME COUNT 29 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 7.4992
SIGMA(DN) = 0.9268
1
2
3
4
6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
0.00
1.00
2.00
3.00
4.00
5.00
6.00

IPL RMS AMPLITUDE SPECTRUM

VIKING LANDER * CAMERA * SPARE GMT TIME **:**:**

AZIMUTH 70.0/ 82.5 ELEVATION 30/-30 HIGH DATA RATE

IR COLOR MODE IR3 DIODE OFFSET 3 GAIN 2

FRAME COUNT 30 ** *** 1974 PSA TEMP 35 DEG C (49

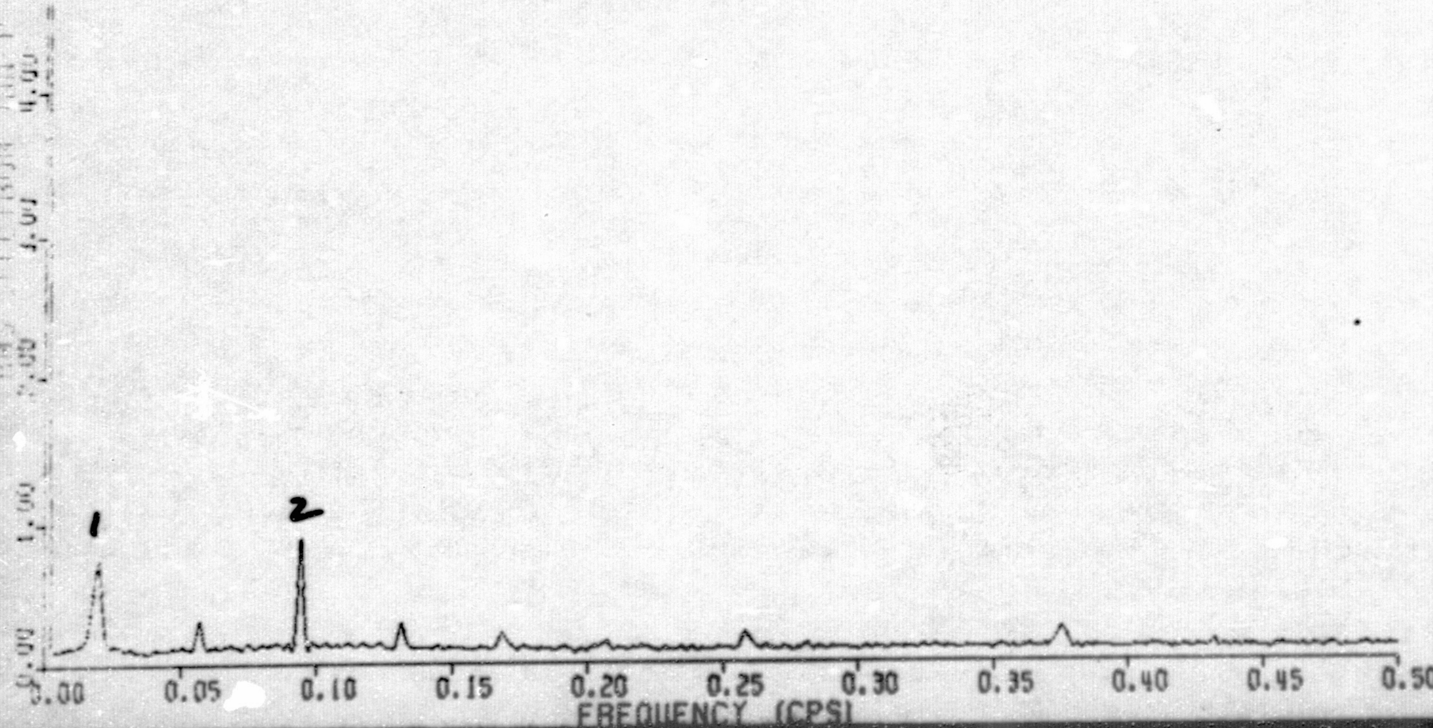
DARK CURRENT SUBTRACTOR OFF

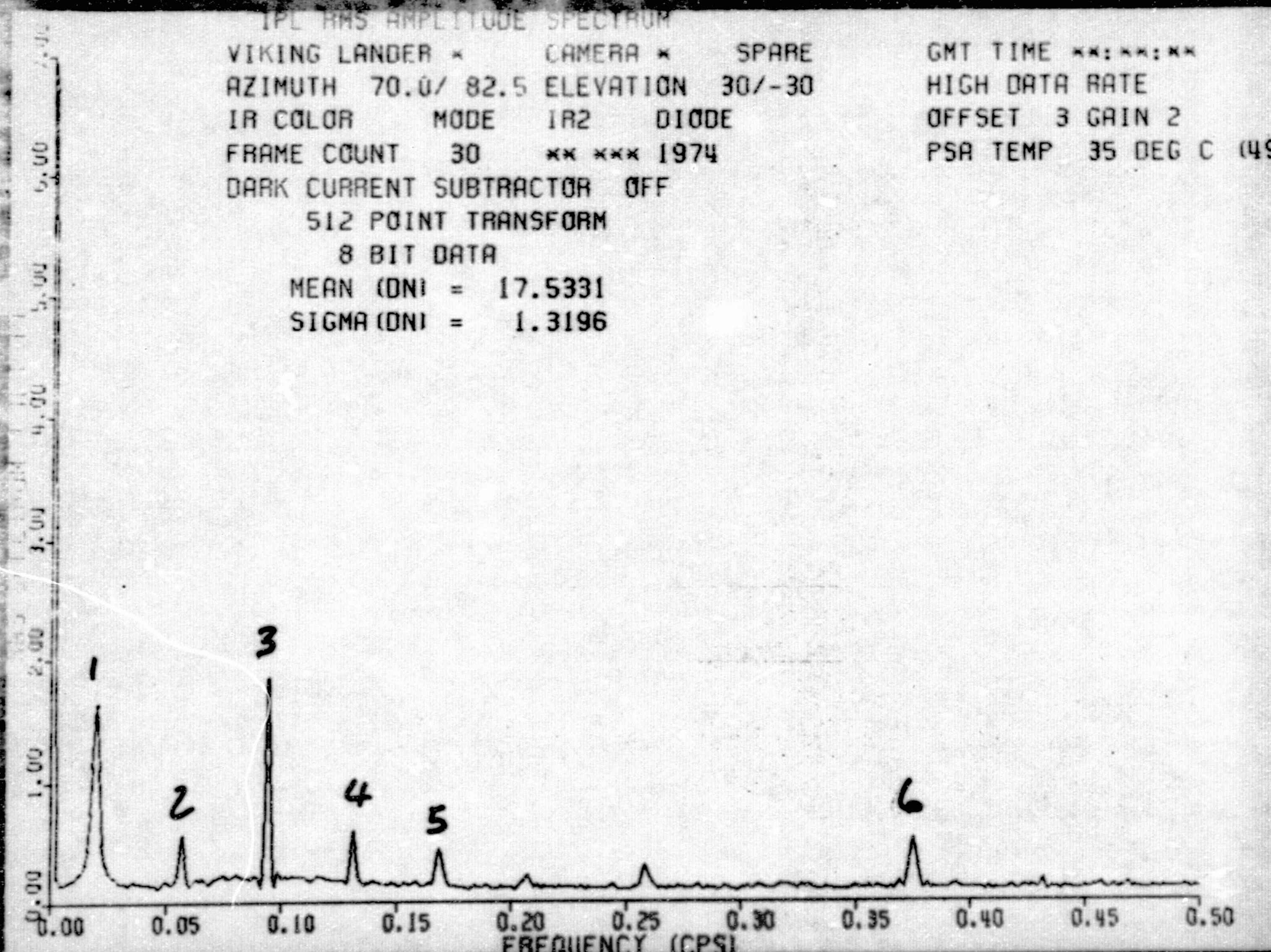
512 POINT TRANSFORM

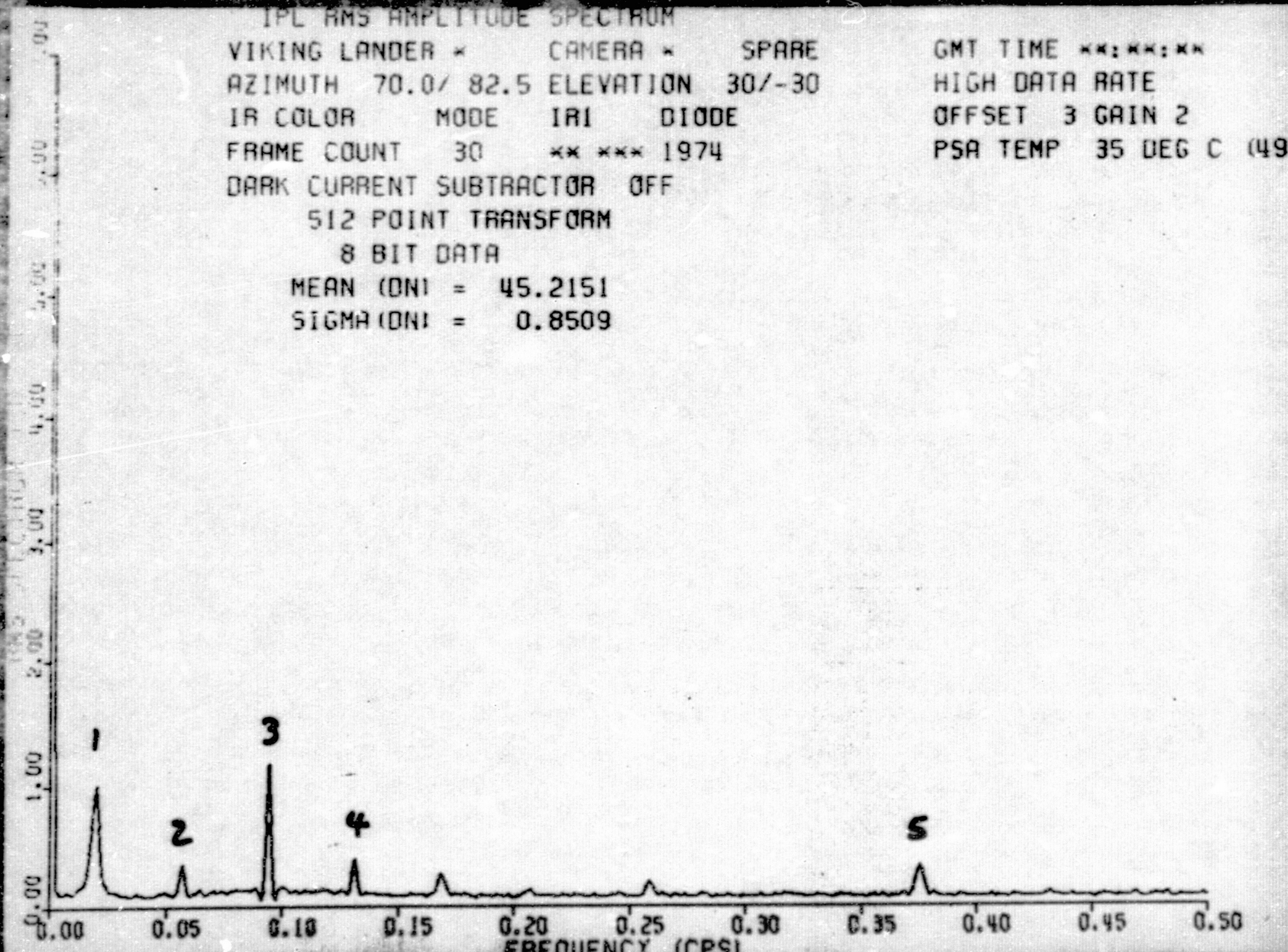
8 BIT DATA

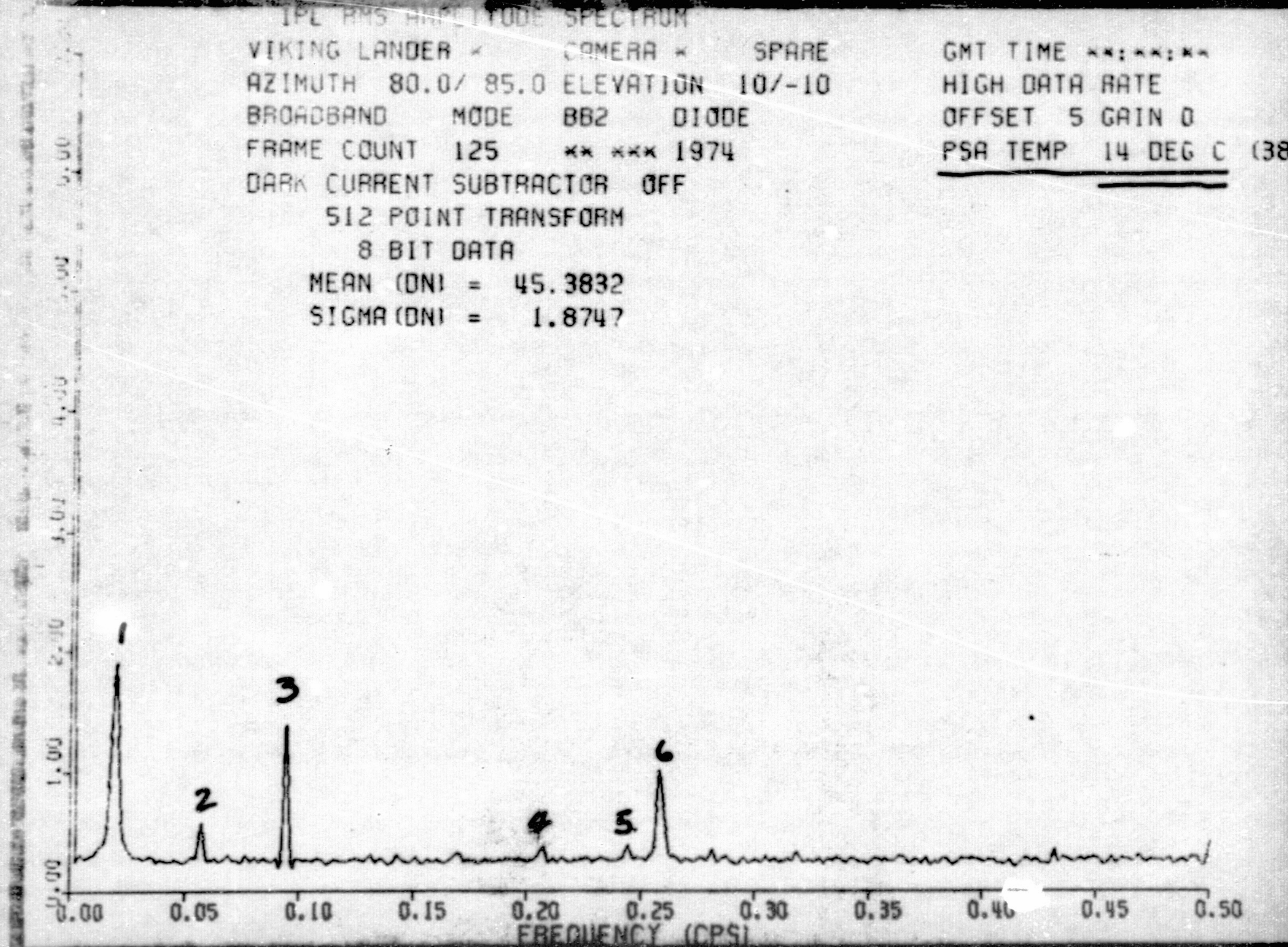
MEAN (DN) = 17.3444

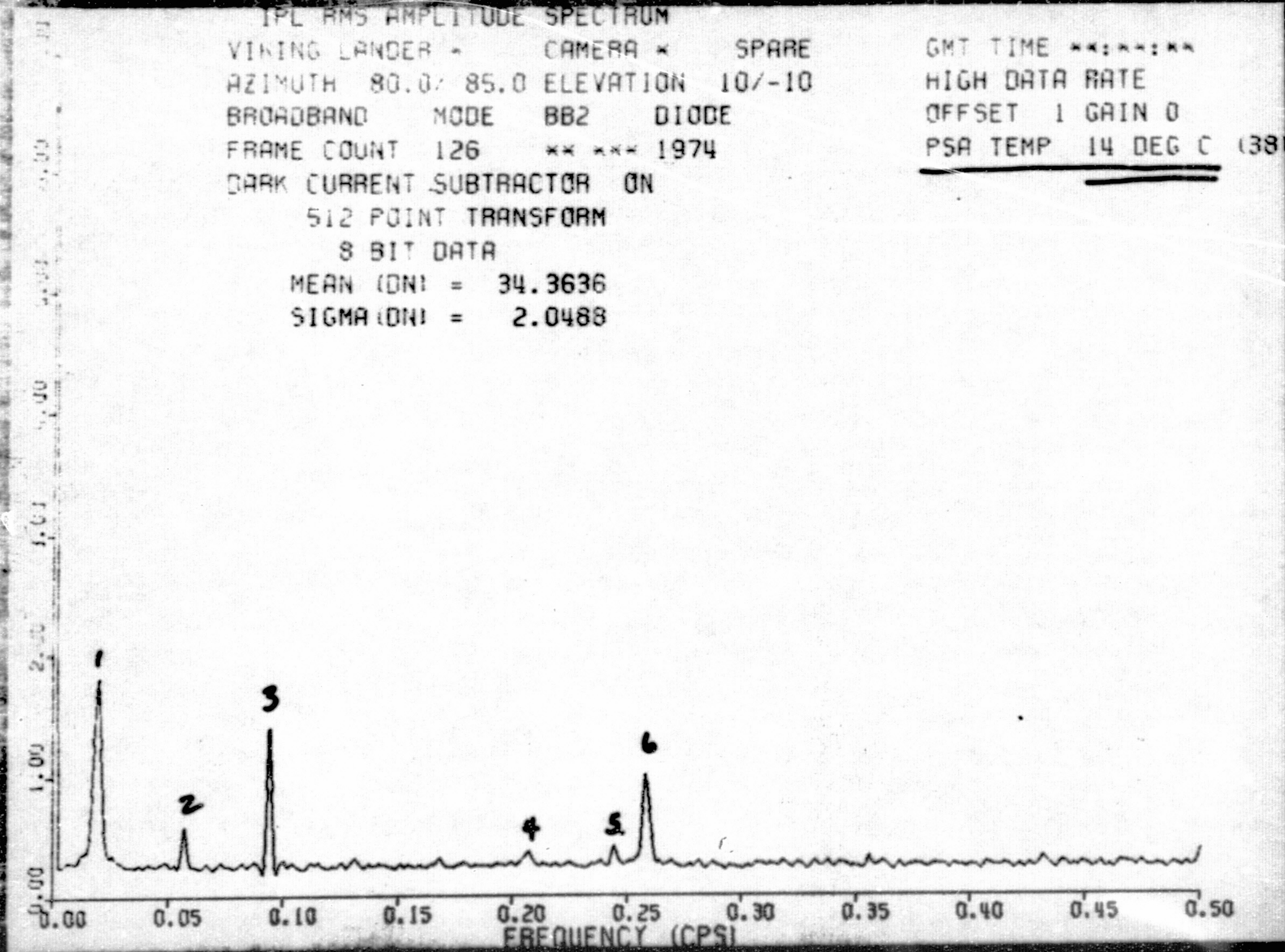
SIGMA(DN) = 0.7651

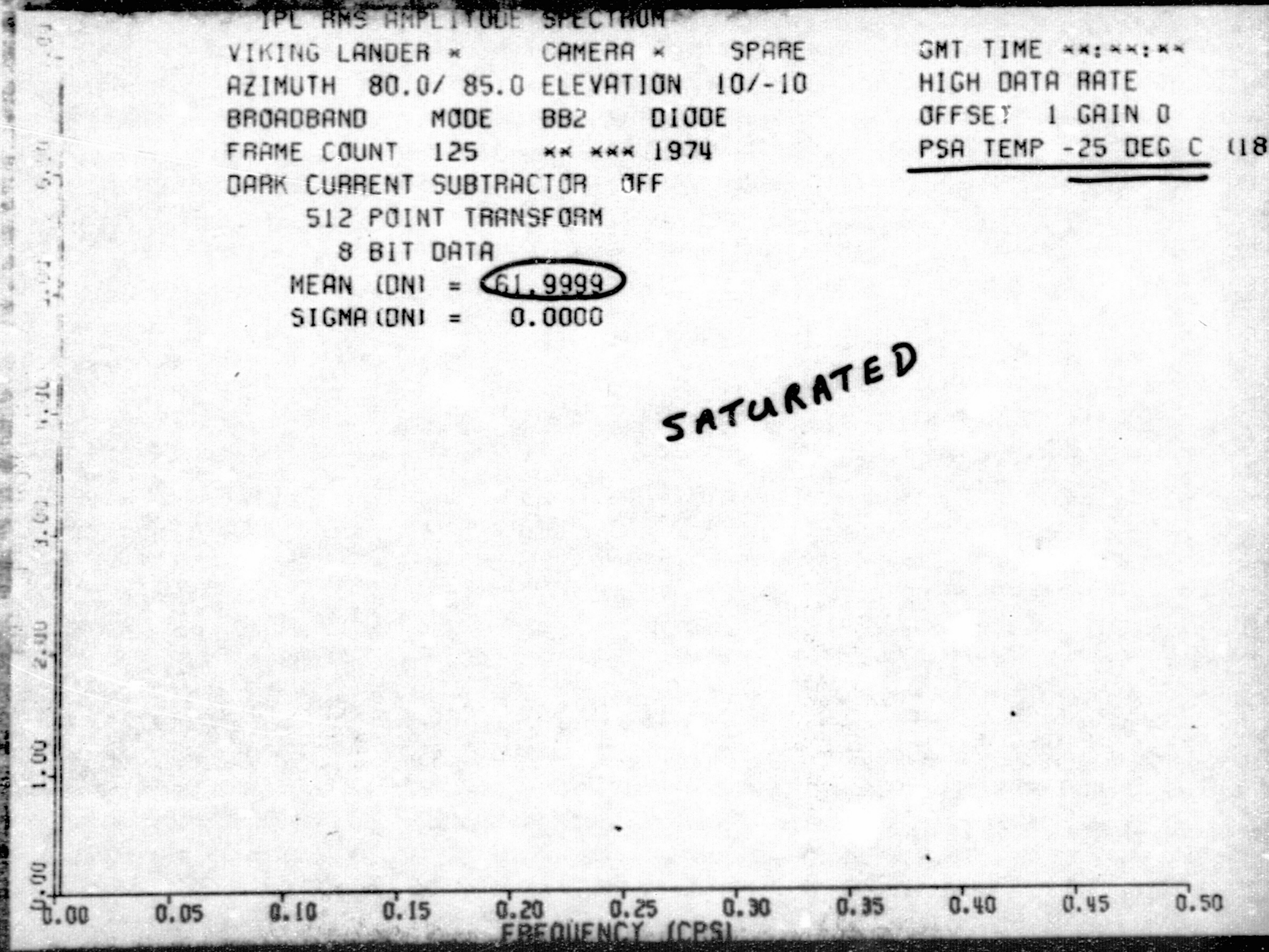



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR2 DIODE
FRAME COUNT 30 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 17.5331
SIGMA(DN) = 1.3196
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 2
PSA TEMP 35 DEG C (49
1
2
3
4
5
6
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
IR COLOR MODE IR1 DIODE
OFFSET 3 GAIN 2
FRAME COUNT 30 ** *** 1974
PSA TEMP 35 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 45.2151
SIGMA(DN) = 0.8509
1
2
3
4
5
0.00
1.00
2.00
3.00
4.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 5 GAIN 0
FRAME COUNT 125 ** *** 1974
PSA TEMP 14 DEG C (38
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 45.3832
SIGMA(DN) = 1.8747
1
2
3
4
5
6
0.00
1.00
2.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER -
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 1 GAIN 0
FRAME COUNT 126 ** *** 1974
PSA TEMP 14 DEG C (38
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 34.3636
SIGMA(DN) = 2.0488
1
2
3
4
5
6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * SPARE
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 125 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 61.9999
SIGMA (DN) = 0.0000
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 0
PSA TEMP -25 DEG C (18
SATURATED
0.00
1.00
2.00
3.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

IPL RMS AMPLITUDE SPECTRUM

VIKING LANDER - CAMERA - SPARE

AZIMUTH 80.0/ 85.0 ELEVATION 10/-10

BROADBAND MODE BB2 DIODE

FRAME COUNT 126 ** *** 1974

DARK CURRENT SUBTRACTOR ON

512 POINT TRANSFORM

8 BIT DATA

MEAN (DN) = 36.6582

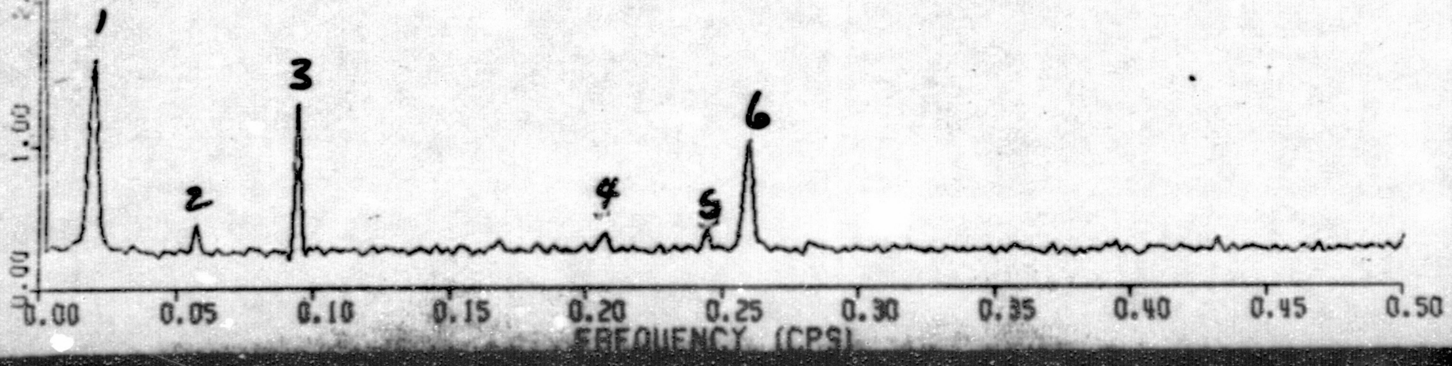
SIGMA(DN) = 2.1214

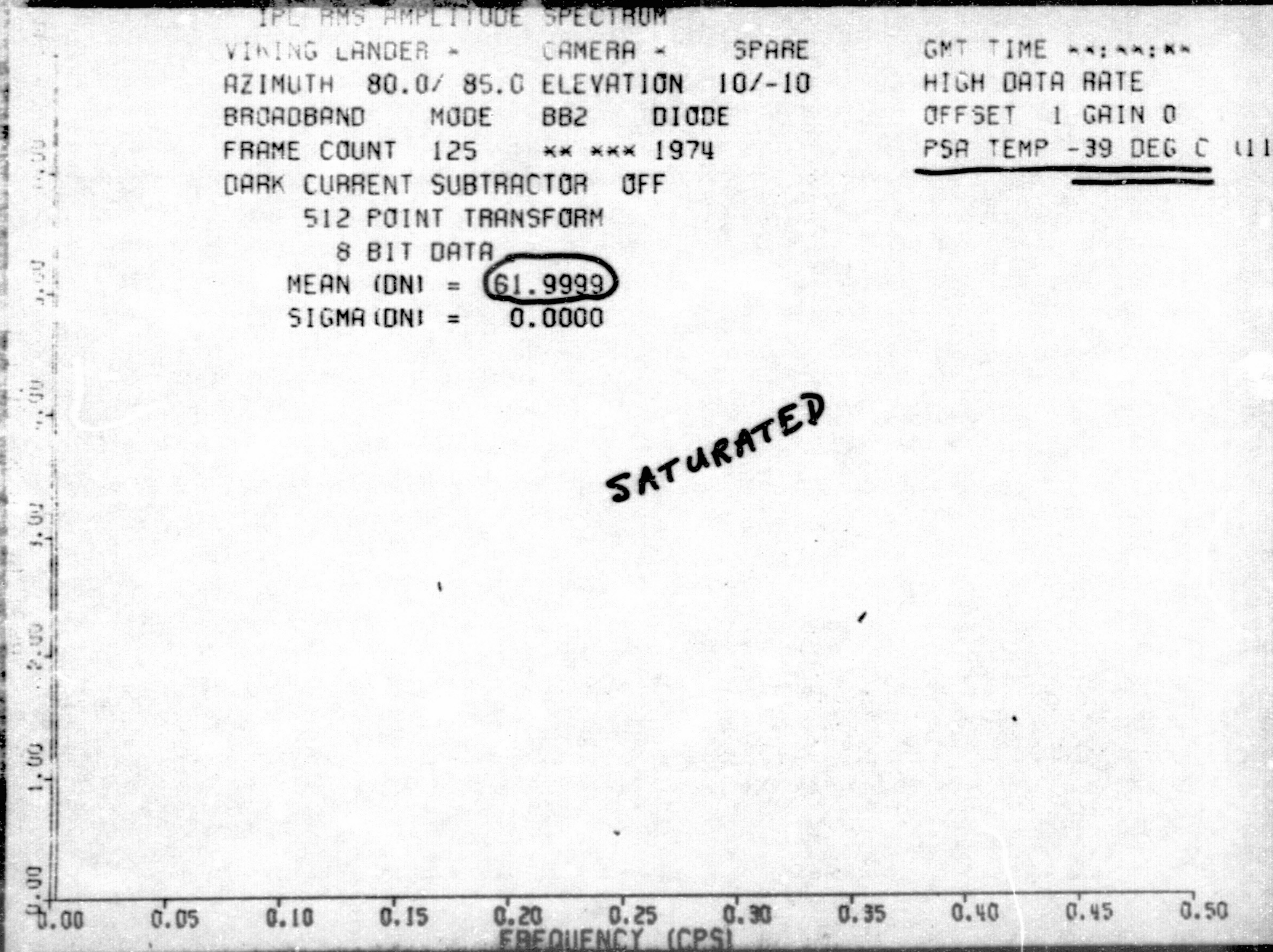
GMT TIME **:**:**

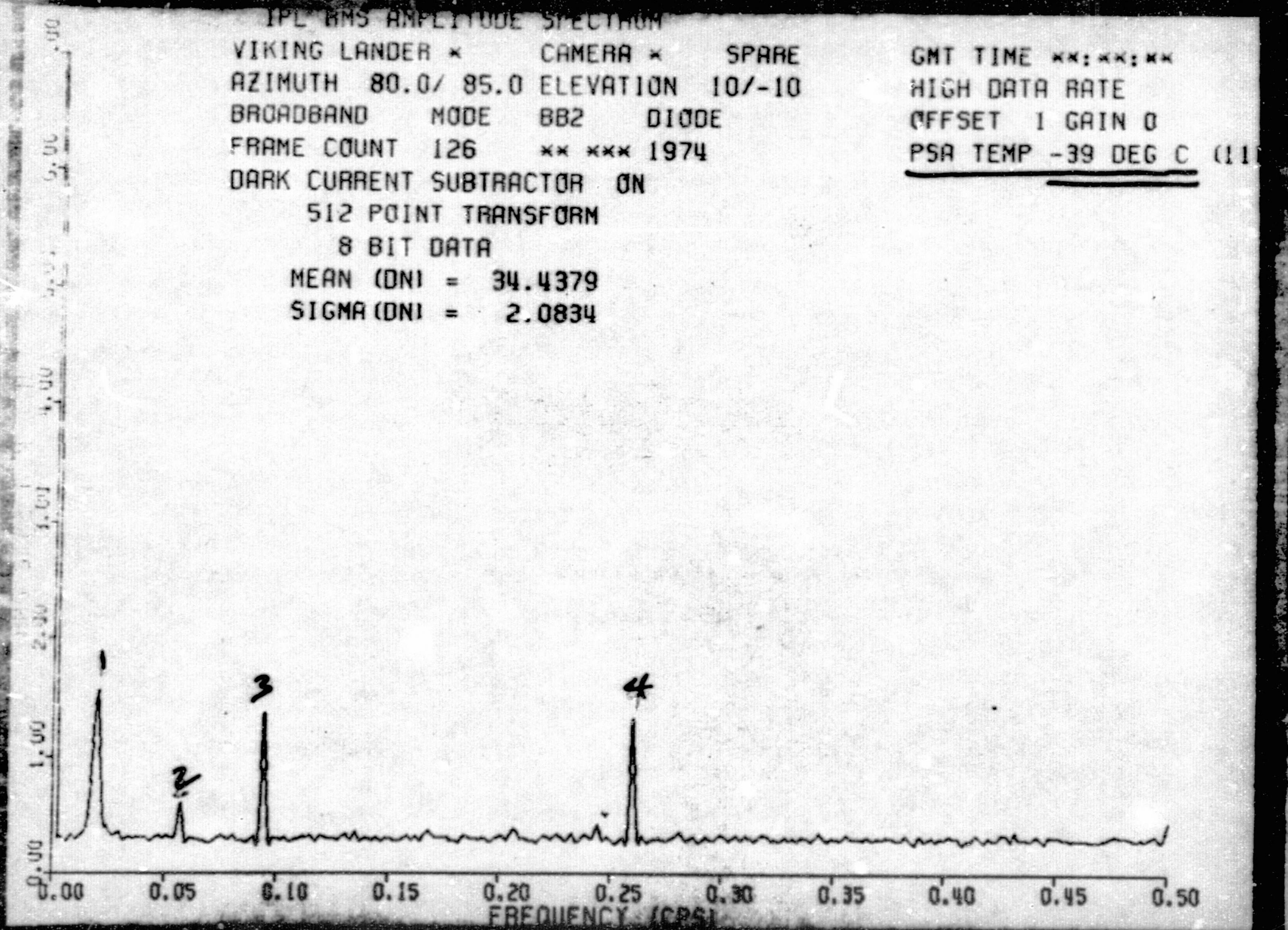
HIGH DATA RATE

OFFSET 1 GAIN 0

PSA TEMP -25 DEG C (18




IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   SPARE
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND   MODE   BB2   DIODE
OFFSET 1 GAIN 0
FRAME COUNT 125   ** *** 1974
PSA TEMP -39 DEG C (11
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 61.9999
SIGMA (DN) = 0.0000
SATURATED
0.00
1.00
2.00
3.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
SPARE
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0
ELEVATION 10/-10
HIGH DATA RATE
BROADBAND
MODE BB2
DIODE
OFFSET 1 GAIN 0
FRAME COUNT 126
** *** 1974
PSA TEMP -39 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 34.4379
SIGMA(DN) = 2.0834
0.00
1.00
2.00
4.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
1
2
3
4

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 8/16/74

CALIBRATION RUN POINT SPREAD FUNCTION, SPARE CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Listings of the pixel matrix in an area around the illuminated pin hole target.

Two listings for each of the Broadband, Visual Color and IR Diodes are included, with the channel and gain setting noted. Offset does not change.

Summary attached.

TEST DESCRIPTION The 0.150" pin hole target was installed on the radiometric light source, then scanned twice for each diode, at different gain settings. Offset = 1 (for all frames).

DATA PROCESSING DESCRIPTION 30x15 pixel listings of the pin hole target area were generated for each frame.

ANALYST David Atwood

APPROVAL Michael R. Wolf

575

SUMMARY

With a low gain setting of four, the center pixel is saturated in BB1, BB2 and BB3 frames. This, of course, results in a large saturated area at high gain settings for these diodes.

Five and three seems like a more reasonable gain setting for the Point Spread Function Test.

For this test the Survey, IR and Visual Color diodes seem to have acceptable point spread functions.

There does not appear to be any secondary peaks or other outstanding anomalies.

VI LANCER * CAMERA * SPARE G INE **C**C** C
DAR CURRENT SUBTRACTOR ON

BB1 FRAME = 1 G=4 offSET=1

507

LINE \ SAMP	252		254		256		258		260		262		264		266
47	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
48	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
49	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2
50	2	2	2	1	2	1	2	1	2	2	2	2	2	1	2
51	2	2	1	2	2	1	3	2	1	2	1	2	2	2	2
52	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1
53	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
54	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2
55	2	2	1	2	1	1	1	2	2	2	2	2	2	2	2
56	2	2	2	2	2	1	2	2	2	2	2	2	2	1	1
57	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1
58	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
59	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
60	1	2	1	1	2	2	2	5	6	3	2	2	2	2	2
61	2	2	2	3	2	2	6	37	53	20	2	2	2	1	2
62	2	2	2	2	2	2	11	56	62	27	3	2	2	2	2
63	2	2	2	2	2	2	3	17	24	7	2	2	2	2	2
64	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
65	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
66	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
67	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
68	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
69	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
70	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2
71	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2
72	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
73	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
74	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
76	2	2	2	2	2	1	2	1	2	2	2	2	2	2	3

VI LANDER * CAMERA * SPARE G LINE **C**C** C
CA CURRENT SUBTRACTOR ON BB1 FRAME=2 G=2 L

LINE \ SAMP	252		254		256		258		260		262		264		266
47	8	7	6	6	3	6	7	7	8	7	7	6	7	6	7
43	7	8	7	7	7	7	7	8	7	9	7	7	7	6	7
49	8	8	7	8	9	8	8	7	9	9	8	9	8	8	7
50	7	9	7	7	7	7	7	8	9	9	7	7	8	9	8
51	7	7	6	7	7	6	7	7	8	8	7	8	7	7	7
52	8	7	7	6	7	7	8	7	7	7	6	7	7	6	7
53	7	8	7	7	7	7	7	7	8	8	7	8	6	7	7
54	8	8	8	8	8	8	9	8	8	9	9	8	8	7	7
55	7	8	8	8	7	6	7	8	8	9	8	7	7	8	8
56	6	7	7	6	6	7	7	7	7	8	7	8	8	8	6
57	8	8	6	7	8	6	7	8	6	7	7	7	7	6	6
58	8	8	3	7	7	7	8	8	8	9	8	8	7	6	7
59	7	7	8	8	8	8	9	10	9	9	8	9	8	7	8
60	7	8	7	7	8	8	11	15	25	13	8	8	8	7	8
61	7	7	6	8	8	8	28	62	62	62	11	8	8	8	7
62	8	9	6	7	9	8	43	62	62	62	10	7	7	6	7
63	8	8	7	8	9	8	15	62	62	30	8	9	8	7	7
64	8	9	7	8	8	9	9	9	10	9	8	9	9	7	8
65	8	9	9	8	8	7	7	7	9	9	9	9	9	7	9
66	6	8	7	7	6	6	8	7	7	8	7	8	8	8	8
67	8	9	8	7	8	6	7	9	8	8	7	7	9	7	7
68	8	9	7	8	8	7	7	7	7	8	7	8	8	8	7
69	8	9	8	8	8	8	8	8	7	9	8	9	9	8	9
70	7	8	8	8	8	7	7	7	7	9	8	8	8	7	8
71	7	8	7	7	7	6	7	7	8	7	7	7	8	7	8
72	7	9	8	8	7	6	7	7	7	8	7	7	7	8	7
73	9	9	8	8	8	7	7	7	8	7	7	8	9	7	8
74	7	9	8	7	8	7	8	9	8	9	9	10	9	8	8
75	7	8	8	8	8	7	8	7	7	8	8	9	9	8	8
76	7	8	7	8	6	7	7	7	7	8	7	7	8	8	8

508

508

VI[illegible]E LANDER # CAMERA # SPARE G[illegible]TIME **C**C** C
DARK CURRENT SUBTRACTOR ON 882 FRAME = 3 G = 4 L

SAMP / LINE	252		254		256		258		260		262		264		266
47	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
48	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
49	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
50	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
51	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
52	2	2	1	2	3	2	1	2	2	2	2	2	2	2	2
53	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2
54	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
55	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
56	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
57	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2
58	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2
59	2	2	2	2	2	2	3	3	2	2	2	2	2	2	2
60	2	2	2	2	2	2	4	23	11	2	2	2	2	2	2
61	2	2	2	2	2	2	24	62	62	3	2	2	2	2	2
62	2	2	1	2	2	2	10	62	38	2	1	2	2	2	2
63	2	2	2	2	2	2	2	3	2	2	2	2	2	1	1
64	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
65	2	2	2	1	2	1	2	2	1	2	2	2	2	1	1
66	1	2	1	2	2	1	1	1	1	3	1	2	2	2	2
67	1	1	1	1	1	1	1	1	1	2	1	2	2	1	1
68	1	2	2	1	1	1	1	1	1	1	1	1	1	1	1
69	2	2	2	2	2	1	1	1	1	2	1	1	2	2	2
70	1	2	2	1	2	1	2	1	3	3	2	2	2	1	1
71	1	2	1	2	2	1	2	1	1	1	1	1	2	1	2
72	1	1	1	2	1	1	1	1	1	1	1	1	1	1	2
73	1	1	2	2	2	1	1	1	1	1	1	1	1	1	1
74	2	2	2	2	2	1	2	2	1	2	1	1	2	2	2
75	1	2	2	2	1	1	2	1	1	1	1	2	1	1	2
76	1	1	2	1	2	1	2	1	1	1	1	2	2	2	2

509

509

VI LANDER * CAMERA * SPARE CM IME **C**C** C
DA CURRENT SUBTRACTOR ON BB2 FRAME=4 G=2 L

SAMP	252		254		256		258		260		262		264		266
LINE															
47	7	7	7	7	7	7	7	7	7	7	8	7	8	6	7
48	7	8	6	6	6	5	6	7	7	6	7	6	7	7	7
49	7	7	5	6	6	6	7	6	7	7	7	7	7	7	6
50	7	7	6	6	6	6	6	7	6	6	6	7	7	5	6
51	7	8	7	7	7	5	6	6	7	7	6	8	8	6	6
52	7	8	7	7	7	6	8	8	7	8	7	6	7	6	7
53	7	7	6	6	7	6	6	6	7	8	7	7	7	7	7
54	5	6	6	7	5	5	6	6	7	6	6	7	7	7	7
55	7	7	6	6	6	5	6	6	6	7	6	6	7	6	6
56	8	8	7	6	6	6	7	6	6	7	7	7	7	6	6
57	7	7	7	6	7	7	8	7	7	8	7	8	7	7	7
58	6	7	6	6	7	6	7	7	7	8	7	7	7	7	7
59	6	7	6	6	7	6	9	9	8	7	7	6	8	7	7
60	7	8	7	7	7	7	15	62	43	8	7	6	6	6	6
61	7	7	7	7	8	9	62	62	62	10	6	7	7	7	7
62	8	8	6	7	8	8	35	62	62	10	7	8	7	7	7
63	6	7	7	7	7	7	8	10	8	8	7	7	7	7	7
64	6	6	6	6	7	6	7	7	6	6	7	7	7	7	7
65	7	8	7	8	7	7	7	7	6	7	7	7	8	7	7
66	8	8	8	8	8	8	7	8	7	7	7	8	8	7	7
67	8	8	8	8	8	7	8	8	8	8	8	8	8	7	8
68	7	7	7	7	7	8	6	7	7	7	7	8	9	7	8
69	7	7	7	7	7	7	6	8	7	7	7	7	8	6	9
70	7	8	7	8	8	7	7	7	7	8	7	7	8	6	7
71	7	9	8	8	8	7	7	8	7	7	7	7	7	8	8
72	8	9	8	8	7	7	7	7	7	9	7	8	9	8	8
73	7	7	7	7	7	7	8	6	6	7	8	8	8	8	8
74	7	7	7	6	7	6	6	7	6	7	6	7	7	8	7
75	7	8	7	8	7	7	7	8	6	7	7	7	7	7	7
76	8	8	8	8	8	7	7	8	7	7	6	7	7	7	9

510

VI LANDER 4 CAMERA X SPARE CM LINE ##C##C## C
CURRENT FOCI FACTOR L

BB3 FRAME=5 G=4

511

LINE	SAMP 253		257		259		261		263		265		267		269
47	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2
48	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
49	2	2	1	2	2	2	2	1	1	1	1	2	2	2	2
50	2	2	1	2	1	1	1	1	1	2	1	2	2	2	2
51	1	2	2	2	2	2	1	1	1	2	1	2	1	1	2
52	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2
53	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
54	1	2	1	2	2	2	2	3	1	1	1	2	2	2	2
55	2	2	1	2	1	1	1	1	1	1	1	3	1	2	2
56	2	1	2	2	2	2	2	1	1	1	1	2	2	1	2
57	2	2	2	2	2	2	2	2	3	2	2	2	1	2	2
58	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
59	1	2	1	2	2	2	2	2	2	2	1	2	2	2	2
60	1	2	2	2	2	2	4	7	4	2	1	2	2	1	2
61	2	1	2	2	2	5	21	44	21	3	1	2	2	2	2
62	2	2	2	2	2	6	39	62	39	5	2	2	2	1	2
63	2	1	2	2	2	4	22	37	16	3	2	2	2	2	2
64	1	1	1	2	2	2	3	5	3	2	1	2	2	2	2
65	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
66	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
67	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
68	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2
69	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
70	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
71	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
72	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2
73	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
74	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
75	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
76	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

511

BB3 FRAME=6 G=2

LINE	255		257		259		261		263		265		267		269
47	7	8	8	8	8	7	8	6	7	7	7	7	8	9	9
48	7	[illegible]	6	7	7	7	7	6	6	6	6	7	7	7	8
49	7	7	7	9	[illegible]	8	8	6	6	7	6	8	7	7	7
50	9	6	[illegible]	[illegible]	[illegible]	[illegible]	9	7	7	8	7	8	7	7	9
51	7		7	[illegible]	[illegible]	7	8	7	[illegible]	8	8	8	8	8	10
52	7	7	7		7	8	8	8	7	7	8	7	8	8	9
53	6	7	7	7	7	7	7	6	6	6	7	7	6	7	6
54	7	[illegible]	6	6	9	8	8	7	6	6	6	7	7	7	7
55	8	[illegible]	7	9	9	8	9	7	7	8	6	7	7	7	8
56	6	7	7	9	9	8	8	8	8	8	7	9	8	7	9
57	7	7	7	7	7	8	9	8	8	7	6	7	6	7	8
58	6	7	7	8	7	7	7	6	7	7	6	7	7	6	7
59	8	7	6	7	8	9	9	8	8	7	5	7	7	7	7
60	8	8	7	8	9	11	20	32	19	9	7	7	7	6	8
61	7	7	6	9	10	19	62	62	62	16	8	8	9	8	9
62	6	6	6	7	8	28	62	62	62	17	7	8	7	7	8
63	6	6	6	7	8	15	62	62	62	10	6	7	6	7	7
64	7	7	7	8	8	9	15	20	11	8	7	7	6	7	7
65	8	8	8	8	8	9	10	9	8	9	8	7	7	6	8
66	7	7	6	7	8	8	9	8	7	8	7	8	8	7	9
67	5	6	5	7	7	7	8	8	7	8	7	7	7	5	7
68	6	6	5	7	7	6	8	6	7	6	6	7	5	6	7
69	8	7	6	7	7	6	7	8	8	8	6	7	6	6	7
70	8	7	7	8	9	8	8	9	8	8	7	8	7	6	7
71	8	7	6	7	7	8	8	8	8	8	7	7	8	7	8
72	7	5	5	6	6	6	7	7	8	8	7	7	8	5	7
73	7	7	5	6	6	7	8	5	6	7	7	7	5	5	6
74	8	8	6	7	7	7	7	7	8	7	7	7	6	6	5
75	7	8	7	8	8	8	9	8	9	9	7	8	8	6	7
76	7	7	6	6	6	6	8	7	8	9	7	8	7	7	8

512

[illegible] LASER A   CAMERA A   SPARE   [illegible]TIME **C**C**   C
[illegible]CURRENT SUBTRACTION ON   BB4   FRAME=7   G=4   L

513

LINE / SAMP	255		257		259		261		263		265		267		269
47	2	[illegible]	[illegible]	2	2	2	2	2	2	2	2	2	2	2	2
48	2	[illegible]	[illegible]	2	2	2	2	2	2	[illegible]	2	2	2	2	2
49	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
50	2	[illegible]	[illegible]	2	2	2	2	2	2	2	2	2	2	2	2
51	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
52	2	[illegible]	2	2	2	2	2	2	2	2	2	2	2	2	2
53	2	2	2	2	2	2	2	2	2	2	2	2	1	1	2
54	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
55	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
56	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
57	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2
58	2	2	2	2	2	2	3	3	4	3	2	2	2	2	2
59	2	2	2	2	2	3	7	14	15	9	3	2	2	2	2
60	2	2	2	2	2	5	17	27	28	18	6	2	2	2	2
61	2	2	2	2	2	5	18	28	21	23	7	2	2	2	2
62	2	2	2	2	2	3	13	24	27	18	6	2	2	2	2
63	2	2	2	2	2	2	7	12	13	8	3	2	2	2	2
64	2	2	2	2	2	2	2	3	3	3	2	2	2	2	2
65	2	2	1	2	1	2	2	1	2	2	2	2	2	1	1
66	1	1	1	2	1	1	2	1	2	2	2	2	2	1	2
67	1	1	1	1	1	1	1	1	3	1	2	2	1	2	1
68	1	2	2	1	1	1	1	1	2	1	1	1	1	1	1
69	2	2	2	2	1	1	1	1	1	1	1	2	2	1	1
70	2	2	1	2	1	2	1	2	2	2	2	2	2	1	2
71	1	1	1	1	1	1	1	1	1	2	2	2	2	1	1
72	1	1	1	1	1	1	1	1	1	1	1	2	2	1	2
73	1	2	3	2	1	1	1	1	2	1	1	1	1	1	1
74	2	2	2	1	2	1	1	1	1	1	1	2	2	2	1
75	2	2	3	2	1	2	2	1	2	2	1	2	2	2	2
76	1	1	1	1	2	1	1	1	1	1	1	2	2	1	2

513

V[illegible] LANDER # CAMERA # SPARE G[illegible] TIME **C**C** C
DA[illegible] CURRENT SUBTRACTION C[illegible] L

BB4 FRAME=8 G=2

LINE \ SAMPLE	255		257		259		261		263		265		267		269
47	8	7	7	7	8	7	8	6	7	6	6	7	6	7	8
48	7	8	7	7	8	7	9	8	7	8	7	6	6	7	8
49	9	9	7	9	8	8	9	8	7	8	6	8	7	7	7
50	7	7	7	9	[illegible]	9	9	9	8	7	7	8	9	8	8
51	6	7	6	7	7	7	8	8	8	9	7	7	7	6	8
52	7	7	7	8	7	7	7	7	7	7	7	7	7	6	7
53	8	8	6	9	7	8	9	8	8	8	7	7	7	6	7
54	8	8	7	9	8	8	9	8	8	8	8	8	7	6	8
55	7	7	6	7	8	8	9	8	9	8	7	8	8	7	9
56	7	7	6	7	7	7	8	8	7	8	7	8	7	7	8
57	7	6	6	8	8	8	7	8	8	8	7	7	7	6	7
58	7	8	7	7	7	9	11	15	16	10	7	7	7	6	7
59	8	9	8	9	9	12	30	57	59	34	11	8	8	7	8
60	7	8	7	7	8	19	62	62	62	62	20	9	8	8	8
61	6	7	6	7	9	22	62	62	62	62	20	9	7	7	7
62	7	6	6	7	8	19	59	62	62	62	21	8	7	7	7
63	8	7	7	7	8	9	24	49	54	30	10	8	6	7	7
64	8	8	8	9	8	9	10	13	13	11	9	8	7	7	8
65	7	7	6	7	7	8	9	9	9	9	7	8	8	8	8
66	7	8	5	7	7	7	8	7	8	8	7	8	7	6	7
67	7	7	6	7	7	8	7	6	7	7	6	7	7	6	6
68	8	7	7	7	7	7	9	7	8	8	7	8	6	6	7
69	8	7	7	9	8	8	9	8	8	8	7	8	7	6	7
70	8	7	6	7	7	7	8	8	9	8	8	8	8	7	8
71	7	7	6	7	7	6	7	7	8	8	7	8	7	6	7
72	7	7	6	7	8	7	7	6	7	7	6	7	7	6	6
73	8	8	7	7	7	6	7	8	8	9	7	7	6	5	7
74	8	8	7	8	8	8	8	8	8	8	7	8	7	7	8
75	8	7	7	7	7	7	8	7	8	8	7	8	8	8	8
76	7	6	6	6	7	7	8	8	7	8	7	8	7	6	7

514

514

VI LANCEP * CANERA * SPARE GN IPE **C**C** C

PA CURRENT SUBTRACTOR ON L

BLUE FRAME=9 G=4

SAMP / LINE	252		254		256		258		260		262		264		266
1C	1	1	1	1	2	2	2	1	1	1	1	1	2	1	1
11	2	2	2	2	2	2	2	2	1	1	1	1	1	1	2
12	1	1	1	2	2	1	2	2	1	2	2	3	2	2	2
13	1	1	1	1	1	1	2	1	1	1	1	1	1	1	2
14	1	1	1	2	2	1	1	1	1	1	1	1	1	1	1
15	1	1	1	2	1	2	2	1	C	1	1	1	2	1	2
16	2	2	1	2	2	2	2	2	1	2	1	1	1	1	2
17	1	1	1	2	2	2	2	1	2	2	1	2	1	2	2
18	1	1	1	1	1	2	1	2	1	2	1	1	1	1	2
19	0	1	1	1	1	1	2	1	1	1	1	1	1	1	1
20	1	3	1	1	3	2	2	2	2	1	C	1	1	1	1
21	1	2	1	2	2	2	5	2	2	2	1	1	2	1	1
22	1	1	1	1	2	3	22	4	1	2	1	2	1	1	2
23	0	1	1	1	2	2	3	2	1	2	1	1	1	1	1
24	0	1	1	2	2	1	1	1	1	1	1	C	1	1	1
25	1	1	0	1	2	1	2	1	2	2	2	1	C	1	1
26	1	2	1	2	2	2	2	2	2	2	2	2	1	1	2
27	1	1	1	1	3	1	2	2	2	1	1	2	2	2	2
28	1	1	1	1	2	1	2	2	1	1	1	1	1	1	1
29	1	1	1	1	1	1	1	1	1	1	1	1	1	C	1
30	1	2	1	1	1	1	2	2	1	2	1	1	1	1	1
31	1	2	1	1	1	1	2	2	2	1	2	2	2	1	2
32	1	2	1	1	1	1	2	1	1	2	1	1	2	1	2
33	1	1	1	1	1	1	1	1	2	2	1	2	1	C	1
34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35	2	2	1	1	1	1	1	2	2	2	1	1	1	C	1
36	2	2	1	1	1	2	2	2	2	2	2	2	1	1	1
37	1	2	1	1	2	1	1	2	3	2	2	2	2	2	1
38	1	2	1	1	1	1	1	1	1	2	2	2	2	2	1
39	2	2	1	C	C	1	2	1	1	1	1	1	1	1	1

515

VI[illegible] LANDER * CAMERA * SPARE G[illegible]LINE **C**C** C
CA[illegible] CURRENT SUBTRACTOR ON BLUE FRAME=10 G=2 L

516

LINE \ SAMP	252		254		256		258		260		262		264		266
10	9	8	8	7	8	9	10	10	9	9	8	7	7	7	8
11	8	9	7	9	9	8	8	9	9	10	7	8	8	9	8
12	8	9	7	7	8	8	10	9	9	9	9	8	9	10	9
13	9	8	7	7	8	8	8	8	9	9	8	8	9	8	9
14	9	7	7	8	8	8	9	7	7	9	8	8	7	7	6
15	9	8	8	8	8	7	9	9	9	10	9	8	8	9	8
16	7	9	9	8	9	9	11	10	9	10	9	7	8	8	8
17	8	7	7	7	7	8	9	10	8	9	9	9	8	9	9
18	8	8	7	7	7	8	8	9	7	7	8	9	8	8	8
19	7	8	6	8	7	8	8	8	8	9	7	8	8	7	7
20	8	9	8	9	7	8	9	9	10	9	9	8	7	6	8
21	9	9	8	8	8	9	21	12	9	9	9	9	9	7	9
22	9	9	7	9	8	11	82	18	10	9	8	9	9	8	9
23	7	7	7	8	8	7	9	9	9	9	8	9	9	8	8
24	8	9	7	6	9	8	9	8	8	8	7	9	9	6	8
25	8	8	8	8	8	8	8	8	10	9	9	10	7	8	7
26	9	8	8	9	9	6	9	9	9	9	10	9	10	8	9
27	9	10	7	9	8	7	9	9	9	10	9	7	10	9	9
28	7	8	7	7	7	8	9	7	8	9	9	9	9	7	7
29	8	9	8	6	8	9	8	8	8	8	8	8	7	7	9
30	9	8	8	8	8	7	8	8	9	10	9	9	8	8	8
31	7	10	8	9	11	9	10	9	10	9	10	9	9	9	9
32	8	8	9	8	8	7	8	9	9	10	9	9	8	9	9
33	7	8	7	7	9	7	7	8	8	9	9	9	9	9	8
34	9	10	8	9	7	7	9	9	8	8	8	8	8	7	7
35	9	10	9	8	8	9	9	8	8	10	9	9	9	8	6
36	9	10	9	8	9	8	9	9	10	9	9	9	9	9	8
37	8	9	9	8	8	6	8	7	7	9	9	10	9	8	9
38	9	8	8	8	8	7	7	8	7	8	8	9	10	8	8
39	8	10	9	8	8	6	8	8	9	8	7	7	8	7	8

VI C LANCER * CAMERA * SPARE G TIME **0**C** C

DARK CURRENT SUBTRACTOR ON L

GREEN FRAME=11 G=4

LINE \ SAMP	252		254		256		258		260		262		264		266
10	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2
11	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	1	2	2	2	2	2	2	2	2	1	1	2	2	2	2
13	1	2	2	2	2	1	2	1	1	2	1	1	1	2	2
14	2	2	1	2	2	2	2	2	2	2	1	1	2	2	2
15	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2
16	1	2	1	2	2	2	2	2	2	2	1	2	2	2	2
17	2	1	1	1	2	2	2	2	2	2	1	2	1	1	2
18	1	2	1	2	2	2	2	2	1	2	1	1	1	2	2
19	3	2	1	2	2	2	2	2	[illegible]	2	1	1	1	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
21	1	1	1	1	2	2	6	3	2	2	2	2	2	2	2
22	1	1	1	2	2	3	21	3	2	2	2	2	2	1	2
23	1	1	1	2	3	2	2	2	1	2	1	1	1	1	1
24	2	2	1	2	2	1	2	2	2	2	2	2	1	1	2
25	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
26	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
27	2	3	1	1	2	1	2	2	2	2	2	2	2	2	2
28	1	2	6	1	2	2	2	2	2	2	2	2	2	1	2
29	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2
30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2
32	1	1	1	1	1	1	3	2	1	2	2	2	2	2	2
33	2	2	1	1	2	1	2	2	1	2	1	2	1	1	1
34	2	2	1	2	2	2	2	1	2	2	2	2	2	1	2
35	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
36	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2
37	1	1	2	1	1	1	2	2	2	2	2	2	2	2	2
38	2	2	2	2	1	1	3	2	2	2	3	2	1	1	2
39	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2

517

LANDER * CAMERA * SPARE GM LINE **C**C** C

CURRENT SUBTRACTOR ON GREEN FRAME = 12 G = 2 L

518

LINE \ SAMP	252		254		256		258		260		262		264		266
10	8	9	9	8	6	6	7	8	6	8	8	9	9	9	8
11	8	9	8	7	8	7	9	8	7	9	9	8	8	8	9
12	7	8	7	9	8	6	7	7	7	9	9	8	9	8	8
13	7	7	6	7	6	9	7	7	6	7	8	8	8	8	8
14	8	8	8	7	6	4	7	7	6	8	6	7	7	7	7
15	9	9	8	9	7	6	7	8	6	8	7	8	8	7	7
16	9	8	7	7	7	7	8	9	8	10	8	9	9	7	8
17	8	8	7	8	7	7	7	6	8	9	9	9	8	7	8
18	7	8	6	7	6	6	7	7	7	8	7	7	9	8	7
19	8	9	8	7	7	6	7	7	7	8	7	7	8	6	6
20	8	9	7	6	7	7	7	7	8	7	7	8	9	7	6
21	9	8	6	7	7	8	25	9	8	9	8	9	9	9	8
22	8	8	7	7	7	11	62	14	8	9	9	8	8	7	9
23	6	7	6	6	5	8	9	7	7	9	8	8	7	8	9
24	8	8	7	6	6	6	7	8	7	8	7	7	6	5	7
25	7	9	8	7	7	7	8	6	6	8	7	8	9	6	7
26	8	8	8	6	7	7	8	8	8	9	8	7	8	7	8
27	7	8	8	6	7	6	6	6	6	9	8	8	8	6	9
28	6	8	6	6	6	6	8	6	6	8	8	8	7	7	8
29	8	8	6	6	6	5	7	7	7	7	6	6	6	7	6
30	8	8	6	7	7	6	7	7	7	8	8	9	8	6	6
31	8	8	7	9	8	7	9	7	8	9	8	9	9	8	9
32	8	8	7	8	7	7	6	8	7	9	7	9	8	8	8
33	6	7	5	5	6	7	7	7	7	8	7	8	9	7	7
34	8	8	6	6	5	6	7	7	8	7	6	7	8	6	6
35	9	9	8	8	7	7	6	6	7	8	7	9	7	7	7
36	9	8	8	8	9	8	8	8	9	8	8	9	9	7	8
37	8	8	8	8	5	6	7	8	8	10	8	9	9	7	8
38	7	6	6	6	6	5	8	7	8	9	8	7	8	8	7
39	7	8	6	5	5	5	7	6	7	6	6	7	7	6	6

518

LANDER * CAMERA * SPARE G TIME **C**C**

DARK CURRENT SUBTRACTOR ON

RED FRAME=13 G=4

C
L

LINE \ SAMP	252		254		256		258		260		262		264		266
10	1	2	1	1	1	1	1	1	1	1	1	1	2	1	2
11	1	1	1	2	2	2	2	1	1	1	1	1	2	1	3
12	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2
13	1	2	2	2	2	2	2	1	2	2	1	2	2	2	2
14	1	2	1	2	3	2	2	2	1	1	1	1	2	2	2
15	1	2	1	1	1	1	3	1	1	1	1	1	1	1	2
16	1	2	2	2	2	2	2	1	1	1	1	2	2	1	1
17	1	2	2	2	2	2	2	2	1	1	1	2	3	2	2
18	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	1	2	1	2	2	1	2	1	1	1	1	1	2	2	2
20	1	2	1	1	3	1	1	1	1	1	1	1	2	1	2
21	1	2	2	2	2	2	7	2	1	3	1	1	1	1	1
22	2	2	2	2	2	4	24	2	2	1	1	3	2	2	2
23	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24	1	1	1	2	2	1	2	2	1	1	1	2	2	2	2
25	1	1	1	3	1	1	1	1	1	1	1	1	2	1	2
26	1	2	2	2	2	2	1	1	1	1	1	2	2	1	1
27	2	2	2	2	2	2	2	1	1	1	1	2	2	2	2
28	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29	1	2	1	2	2	2	2	1	1	1	1	2	2	2	2
30	1	2	1	1	1	1	1	1	1	1	1	1	1	1	2
31	1	2	2	2	2	3	2	1	1	1	1	2	1	1	1
32	2	2	2	2	2	2	2	2	1	2	1	1	2	2	2
33	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2
34	1	2	1	2	2	1	2	1	1	1	1	2	2	2	2
35	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2
36	1	2	2	2	2	1	1	1	1	2	1	2	1	1	2
37	2	2	2	2	2	2	2	3	3	2	1	2	2	2	2
38	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2
39	1	2	1	2	2	1	3	1	1	1	1	2	2	2	2

519

519

VI[illegible] LANDER [illegible] CAMERA [illegible] SPARE GN[illegible]TIME **C**C** C
CA[illegible] CURRENT SUBTRACTOR ON RED FRAME=14 G=2 L

520

LINE \ SAMP	252		254		256		258		260		262		264		266
10	7	8	7	8	8	8	8	7	7	7	7	7	8	7	8
11	8	8	8	9	8	8	8	8	8	8	7	8	7	7	8
12	7	7	8	8	8	8	8	8	8	8	7	8	8	8	8
13	7	7	7	8	8	7	8	8	7	7	7	7	8	8	9
14	7	8	7	7	7	7	7	7	7	7	7	7	7	7	7
15	8	8	7	8	8	8	8	8	7	7	7	7	8	7	7
16	8	8	[illegible]	8	9	8	8	8	8	8	7	7	8	7	8
17	7	7	7	8	8	8	8	8	7	8	8	8	8	8	8
18	7	7	7	7	8	7	8	8	7	8	7	7	7	7	8
19	7	7	7	7	7	7	7	7	7	7	7	7	7	7	8
20	7	8	7	8	8	8	9	8	8	7	7	7	7	8	7
21	8	8	8	9	8	9	20	10	8	8	7	7	8	7	8
22	7	7	8	8	8	10	62	17	8	8	7	8	7	8	9
23	7	7	7	7	8	8	10	8	8	8	7	7	7	8	8
24	7	8	8	8	7	7	8	7	7	7	7	7	7	7	8
25	7	8	7	8	8	8	8	8	7	7	7	8	8	8	7
26	8	8	8	8	8	8	8	8	8	8	7	7	7	7	8
27	7	7	7	8	8	8	8	8	8	8	8	8	8	8	9
28	7	7	7	7	8	8	9	8	8	8	7	7	7	7	8
29	7	8	8	7	7	7	8	7	7	7	7	7	7	7	8
30	7	8	7	7	8	8	8	8	8	8	7	7	8	7	8
31	8	8	8	8	9	8	8	8	8	8	7	7	7	8	8
32	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
33	7	7	7	7	7	8	7	8	8	8	7	7	7	7	8
34	7	7	7	7	7	7	8	7	7	7	7	7	7	7	7
35	7	8	7	7	8	8	9	8	8	7	7	7	7	7	8
36	8	8	8	8	8	8	8	8	8	8	8	8	8	7	8
37	7	7	6	7	6	8	8	8	8	8	8	8	8	7	8
38	7	7	7	7	7	7	8	8	8	8	7	7	7	7	8
39	7	7	7	8	8	7	7	7	7	7	7	7	7	7	7

LANDER * CAMERA * SPARE GM LINE **C**C** C
CURRENT SUBTRACTOR ON L

IRI FRAME=15 G=4

LINE \ SAMP	252		254		256		258		260		262		264		266
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	1	2	2	2	2	2	2	1	1	2	1	2	2	2	2
13	2	2	1	2	2	2	2	1	1	2	1	2	2	2	2
14	2	2	2	2	2	2	2	2	1	2	1	2	2	1	2
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	1	2	2	2	2	2	2	2	1	1	1	2	2	2	2
18	2	2	2	2	1	1	2	1	1	1	1	2	2	2	2
19	2	2	2	2	2	2	2	2	1	2	1	2	2	1	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	5	2	2	2	2	2	2	2	2
22	1	2	3	2	2	2	27	3	2	2	1	2	2	2	2
23	2	2	2	2	2	2	2	2	2	1	1	1	2	2	2
24	2	2	1	2	2	2	2	2	1	1	1	2	2	2	2
25	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2
26	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	1	1	2	2	2	2	2	2	2	2	1	1	2	2	2
28	1	2	2	1	2	1	2	2	1	2	1	1	2	1	2
29	1	2	3	2	2	2	2	2	2	1	1	2	2	2	2
30	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
31	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
32	1	2	2	2	2	1	2	2	2	3	1	1	2	2	2
33	2	2	1	2	2	1	2	2	1	1	1	2	2	1	2
34	2	2	2	2	2	2	2	2	1	2	1	2	2	2	2
35	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
36	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	1	2	1	2	2	2	2	2	2	2	1	1	2	2	2
38	2	2	1	2	2	2	2	1	2	2	1	1	2	2	2
39	2	2	2	2	2	2	2	2	2	2	1	1	1	1	2

521

LANDER *   CAMERA *   SPARE   GM IME **C**C**   C

URRENT SUBTRACTOR ON   IRI FRAME=16 G=2   L

522

LINE \ SAMP	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266
10	8	9	9	9	8	7	8	8	8	8	8	7	7	7	8
11	8	8	8	9	8	8	9	9	8	9	8	8	9	7	9
12	7	7	7	8	7	8	10	9	9	8	8	8	8	8	8
13	7	7	6	6	7	7	8	8	8	8	8	9	7	6	7
14	7	7	7	7	8	7	8	8	7	7	7	7	7	7	7
15	8	8	7	7	8	7	8	8	8	9	7	7	8	7	7
16	7	9	8	8	9	8	8	9	8	9	8	8	8	7	7
17	8	8	7	7	7	8	9	8	8	9	8	8	8	8	8
18	7	8	7	7	8	7	8	7	7	8	7	7	8	7	7
19	7	7	7	7	7	8	8	7	7	8	7	6	7	7	9
20	7	7	8	7	7	7	9	8	8	8	8	7	7	7	7
21	8	8	8	8	9	9	23	10	9	9	8	8	8	7	8
22	7	8	7	7	7	13	62	15	8	9	8	8	7	7	11
23	6	7	6	7	7	8	10	9	9	8	8	7	7	8	7
24	7	7	7	7	8	7	8	8	7	8	7	7	6	6	7
25	8	8	7	8	8	7	9	8	8	8	7	7	7	6	8
26	8	9	8	8	9	8	9	[illegible]	9	9	8	8	8	7	7
27	7	7	7	7	8	8	8	9	8	8	7	8	8	7	8
28	7	7	7	7	8	7	8	7	8	8	8	7	8	6	7
29	7	7	7	7	7	7	7	7	7	7	7	7	7	6	8
30	8	8	7	8	8	8	8	8	9	8	7	7	7	7	8
31	8	8	8	8	8	8	9	8	8	9	8	8	8	7	7
32	8	8	7	7	8	7	8	8	8	8	7	8	8	8	8
33	7	7	7	7	7	7	8	8	8	9	8	9	8	7	8
34	7	8	7	7	7	7	8	7	7	7	7	7	7	7	7
35	8	8	7	8	8	7	8	8	8	9	8	7	7	7	8
36	8	8	8	8	9	8	9	8	8	9	9	8	7	8	8
37	7	7	7	7	7	8	9	9	8	9	8	7	8	8	8
38	7	7	6	7	8	7	8	8	7	8	8	8	8	7	7
39	7	7	6	8	8	7	8	7	7	7	7	7	7	6	8

522

...CANCER # CAMERA # SPARE GM... IME **C**C** C

...CURRENT SUBTRACTOR ON L

IR2 FRAME=17 G=4

J-3

LINE \ SAMP	252		254		256		258		260		262		264		266
10	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2
11	2	2	2	1	1	1	2	2	1	2	2	2	2	2	2
12	2	2	2	1	2	1	2	2	2	2	1	1	2	2	2
13	2	2	2	2	2	3	2	1	1	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2
16	3	2	1	1	2	1	1	1	1	2	2	2	2	2	2
17	2	2	2	2	2	1	2	1	2	2	1	2	1	1	2
18	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
21	2	2	1	2	2	1	4	2	1	2	2	2	2	2	2
22	2	2	2	2	2	3	26	3	1	1	1	2	1	1	2
23	2	2	2	2	2	2	3	2	1	2	2	2	2	2	2
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
26	2	2	1	2	1	1	1	1	1	2	2	2	2	2	2
27	2	2	2	2	2	C	1	1	1	2	2	2	2	1	2
28	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2
29	2	3	2	2	2	1	2	2	2	2	2	2	2	2	2
30	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2
31	2	2	1	2	2	1	1	1	1	2	1	2	2	2	2
32	2	2	2	2	2	1	1	C	1	2	2	2	2	1	2
33	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2
34	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
35	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2
36	2	2	1	2	2	1	1	3	1	1	2	2	2	2	2
37	2	2	2	2	2	1	2	1	1	2	3	2	2	1	1
38	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
39	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2

523

V... LANCER * CAMERA * SPARE GM... IME **C**C** * C

... CURRENT SUBTRACTOR ON L

IR2 FRAME=18 G=2

524

LINE \ SAMP	252		254		256		258		260		262		264		266
10	6	8	6	6	6	5	8	7	8	8	7	9	8	7	8
11	7	9	6	6	6	5	7	7	7	6	6	7	7	6	7
12	8	8	8	8	7	6	6	7	8	8	7	8	8	6	6
13	9	10	7	8	8	8	8	8	6	9	8	9	8	7	8
14	8	8	8	8	7	6	7	7	8	9	8	9	8	8	8
15	7	7	7	6	6	6	7	7	7	7	7	8	9	7	8
16	8	9	8	7	6	5	6	6	7	9	6	6	7	6	7
17	9	9	8	6	8	7	7	8	7	8	8	8	9	8	7
18	8	9	7	8	8	8	9	7	9	9	9	8	8	7	8
19	6	9	9	9	8	6	7	6	7	10	9	9	8	8	8
20	5	7	6	7	6	5	7	6	7	8	8	7	9	7	9
21	8	9	8	7	7	6	18	8	6	8	7	6	7	6	7
22	9	9	8	7	7	12	62	14	7	7	7	8	8	7	8
23	9	9	8	8	8	8	10	9	8	10	9	9	9	7	8
24	8	8	8	8	7	6	8	7	8	9	9	9	9	8	9
25	6	6	6	7	7	6	6	6	7	8	6	8	8	8	8
26	8	8	6	7	6	5	6	6	6	6	6	7	7	6	6
27	9	9	8	8	8	7	7	6	8	6	7	8	9	8	7
28	10	9	8	7	8	8	8	7	8	9	8	10	9	8	9
29	7	9	8	7	9	6	7	6	7	9	8	10	9	7	8
30	7	7	6	7	7	5	6	7	6	8	7	8	8	7	9
31	7	9	8	8	7	6	6	5	6	7	6	7	7	6	8
32	8	9	8	8	9	8	7	7	6	7	7	8	9	9	8
33	8	9	9	8	8	8	8	8	8	8	9	8	9	8	8
34	6	8	8	9	7	7	6	6	5	9	8	10	9	9	8
35	7	8	6	7	6	5	6	6	6	7	7	8	9	8	8
36	8	8	8	8	7	5	6	6	6	7	7	7	6	7	8
37	9	9	8	8	8	6	7	7	7	7	7	8	9	7	8
38	8	9	7	8	7	7	8	9	7	9	9	9	8	8	8
39	7	9	8	8	7	7	7	7	6	6	7	9	9	8	9

VI... LINES * CAMERA * SPARE GM... TIME **C**C** C

D... CURRENT SUBTRACTOR ON L

IR3 FRAME=19 G=4

LINE	SAMP 252		254		256		258		260		262		264		266
10	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2
11	1	2	2	1	2	1	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
16	1	2	2	1	2	2	2	2	1	2	2	2	2	2	2
17	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2
18	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	4	3	2	2	2	2	2	2	2
22	2	2	2	1	2	3	27	6	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2
27	2	2	2	2	2	2	2	2	2	2	1	2	1	1	2
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
32	2	2	2	1	1	2	2	2	2	2	2	2	2	1	2
33	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
34	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
35	2	2	2	2	2	1	3	2	2	2	2	2	2	2	2
36	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
37	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
38	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
39	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

LANDER * CAMERA * SPARE GMT TIME **C**C** C

DARK CURRENT SUBTRACTOR ON IR3 FRAME = 20 G = 2 L

526

LINE \ SAMP	252		254		256		258		260		262		264		266
10	6	7	6	7	7	7	6	6	5	7	5	6	7	6	6
11	8	8	7	7	7	6	7	7	7	7	6	6	6	6	7
12	7	9	7	9	8	7	10	8	8	8	7	6	6	7	7
13	7	7	6	6	7	6	6	8	7	7	7	7	7	8	8
14	6	6	6	7	6	6	7	7	7	7	7	7	6	6	7
15	6	7	6	7	7	7	6	6	7	7	6	7	6	7	7
16	7	7	7	7	7	6	8	8	7	7	6	7	6	6	8
17	7	7	6	8	7	7	8	7	7	7	7	7	7	7	7
18	7	7	6	6	7	7	7	7	8	7	6	8	7	7	8
19	6	7	6	6	6	6	7	7	7	7	6	7	6	6	6
20	6	8	6	6	7	7	7	7	7	6	6	6	7	7	6
21	7	8	7	7	8	8	17	12	7	7	7	7	6	6	6
22	7	8	7	7	7	12	62	23	9	8	7	7	7	6	6
23	7	7	6	7	7	7	9	9	7	7	6	8	8	7	8
24	6	7	6	6	6	7	7	7	7	7	7	6	7	6	7
25	7	7	7	7	7	7	7	7	6	7	5	7	6	5	6
26	7	8	6	7	7	6	7	7	7	8	7	6	7	6	7
27	6	7	8	8	7	7	8	8	8	8	7	8	7	6	7
28	7	8	7	7	6	6	7	8	7	8	7	7	7	7	8
29	6	6	6	6	7	7	6	6	7	7	7	7	7	6	6
30	7	6	7	7	6	6	6	7	6	7	7	6	6	7	7
31	7	6	7	7	7	6	9	7	7	7	7	7	7	6	6
32	6	8	6	8	7	7	7	8	8	8	7	7	7	7	7
33	6	7	7	6	7	6	7	8	8	7	7	7	6	7	7
34	6	7	6	7	7	6	7	7	7	7	7	7	7	6	6
35	7	7	6	6	6	6	7	7	7	6	6	6	6	6	6
36	7	7	7	7	7	7	7	6	7	8	8	7	6	6	7
37	7	8	7	7	7	7	7	7	8	8	7	7	8	7	7
38	7	7	7	6	6	7	7	7	8	8	7	7	7	6	7
39	6	7	6	6	7	6	7	7	6	7	8	6	7	6	7

526

VI[illegible]C LANDER * CAMERA * SPARE G[illegible]TIME **C**C** C
DA[illegible] CURRENT SUBTRACTOR ON SURVEY FRAME=21 G=4 L

527

LINE \ SAMP	252		254		256		258		260		262		264		266
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2
22	2	2	2	2	2	2	26	5	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
32	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
33	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
34	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
35	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
36	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
38	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
39	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

527

VI C LANDER * CAMERA * SPARE C TIME **C**C** C
DARK CURRENT SUBTRACTOR ON SURVEY FRAME = 22 G=2 L

LINE \ SAMP	252		254		256		258		260		262		264		266
10	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
11	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8
12	7	7	7	8	8	9	8	8	8	8	7	7	8	8	8
13	7	8	8	8	7	7	8	7	7	7	7	7	8	7	8
14	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
15	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
16	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
17	7	7	7	8	8	8	8	8	8	8	7	7	8	7	8
18	8	8	8	8	8	7	8	7	7	7	7	7	8	7	8
19	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
20	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
21	7	7	7	8	8	8	12	8	8	8	8	8	8	8	8
22	7	9	7	9	8	8	62	18	8	8	8	7	7	8	8
23	8	8	8	8	8	8	8	8	7	7	7	7	7	7	8
24	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
25	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
26	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
27	7	7	7	8	8	7	8	8	8	8	7	7	7	7	8
28	8	8	7	8	8	7	8	7	7	7	7	7	7	7	8
29	8	8	8	8	8	8	8	8	7	8	8	8	8	8	8
30	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
31	7	7	7	8	8	8	8	8	8	8	8	8	8	8	8
32	7	7	7	7	8	7	8	8	7	8	7	7	7	8	8
33	8	8	8	8	8	7	8	8	7	7	7	7	7	7	8
34	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
35	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
36	7	8	7	8	8	8	8	8	8	8	8	8	8	8	8
37	7	7	7	7	8	8	8	8	7	7	7	7	7	8	8
38	8	8	8	8	8	7	8	9	7	7	7	7	7	7	7
39	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

528

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 7/29/74

CALIBRATION RUN COLOR RESPONSE VS. ELEVATION ANGLE, SPARE CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Table I: Raw data from color response vs. elevation test, (Cal. B.O.T. Repeat) consisting of Mean DN and standard deviation for a 2x3 pixel area centered in the MMA radiometric source, at four different elevation pointing angles for each of the six color channels and the SURVEY channel. The contamination cover was OPEN.

Table II: Same as Table I -- the contamination cover was CLOSED.

Graph IA & IB: Plot of Table I Data.

Graph IIA & IIB: Plot of Table II Data.

TEST DESCRIPTION The MMA radiometric source was imaged by all channels at four different pointing angles. The swing fixture was used to offset the elevation effect.

DATA PROCESSING DESCRIPTION The Mean DN and Sigma was computed for a 2x3 pixel area centered on the image (Table I & Table II).

ANALYST David L. Atwood

APPROVAL Michael R. Wolf

SUMMARY

With the contamination cover closed, there was a very obvious decrease in response on all channels at +30° elevation. The effect was most dramatic on the IR3 channel, about 30%, with the Survey channel response down 12%. The other channels were affected by approximately a 20% decrease in color response.

There was no significant change in color response at -50° or -30° elevation with the contamination cover closed. Also, with the contamination cover open, there is no significant color response vs. elevation effect.

The Survey channel data (contamination cover closed) is plotted on Graph IIA and IIB.

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TABLE I

COLOR VS. ELEVATION ANGLE

RAW DATA CONTAMINATION COVER <u>OPEN</u>

CHAN.	ELEV.	OFFSET	GAIN	MEAN	SIGMA
RED	0°	1	4	53.000	1.155
BLUE	0°	1	4	35.000	0.816
GREEN	0°	1	4	46.833	0.899
IR1	0°	1	4	42.167	1.068
IR2	0°	1	4	40.667	1.106
IR3	0°	1	4	43.500	1.384
SURVEY	0°	1	4	49.167	1.069
RED	+30°	1	4	51.833	1.214
BLUE	+30°	1	4	34.833	0.687
GREEN	+30°	1	4	46.667	1.107
IR1	+30°	1	4	41.833	1.863
IR2	+30°	1	4	40.833	1.675
IR3	+30°	1	4	44.000	1.414
SURVEY	+30°	1	4	48.500	1.118
RED	-30°	1	4	52.500	2.363
BLUE	-30°	1	4	34.333	1.972
GREEN	-30°	1	4	46.500	1.979
IR1	-30°	1	4	41.667	1.795
IR2	-30°	1	4	39.833	1.772
IR3	-30°	1	4	41.500	3.096
SURVEY	-30°	1	4	48.500	1.708
RED	-50°	1	4	52.667	1.374
BLUE	-50°	1	4	35.167	1.067
GREEN	-50°	1	4	46.833	1.067
IR1	-50°	1	4	41.667	0.943
IR2	-50°	1	4	39.833	1.067
IR3	-50°	1	4	43.333	0.471
SURVEY	-50°	1	4	49.167	0.373

CAMERA: SPARE

TABLE II

COLOR VS. ELEVATION ANGLE

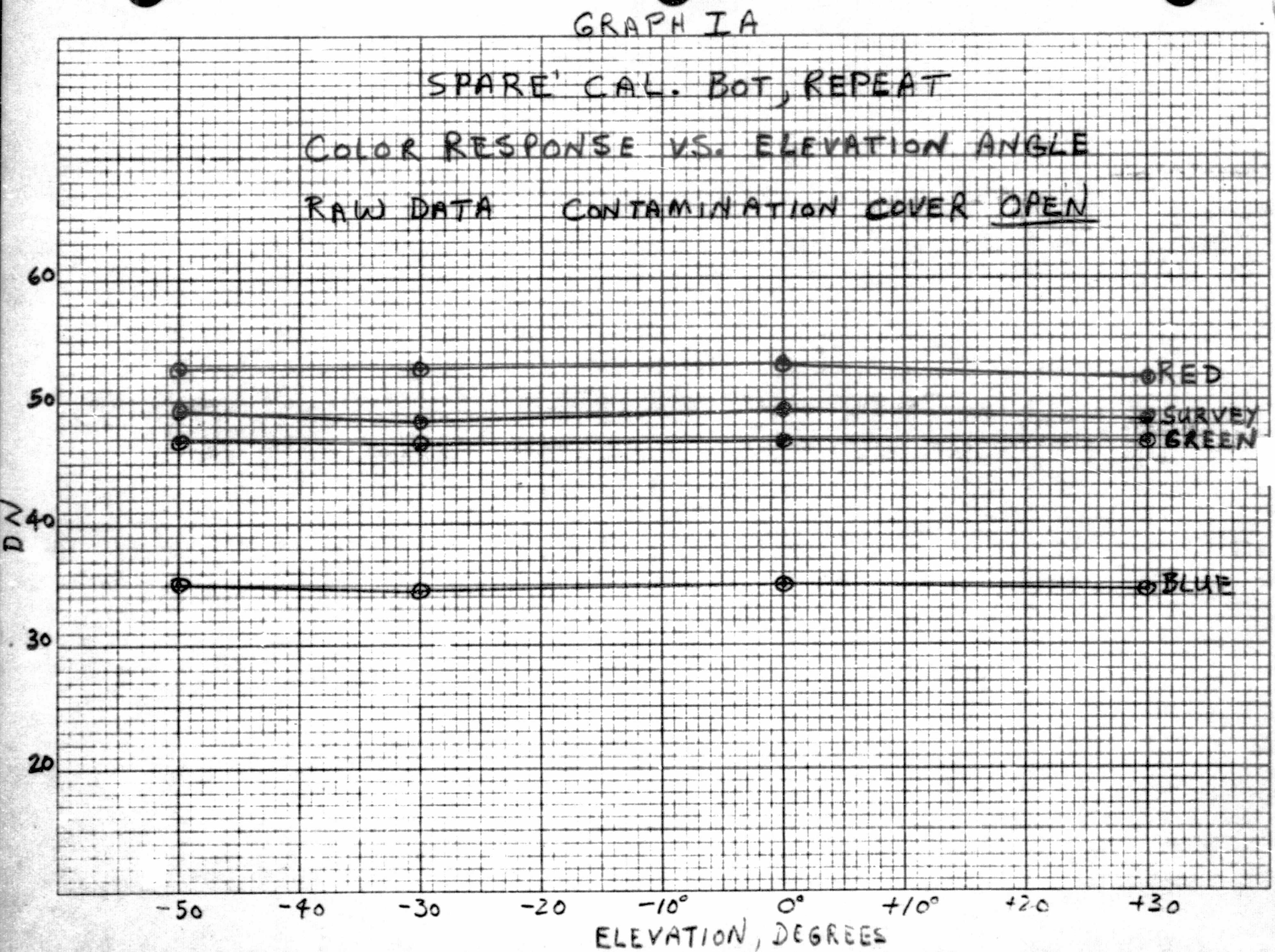
RAW DATA CONTAMINATION COVER CLOSED

CHAN.	ELEV.	OFFSET	GAIN	MEAN	SIGMA
RED	0°	1	4	49.167	1.069
BLUE	0°	1	4	33.167	0.688
GREEN	0°	1	4	44.000	0.816
IR1	0°	1	4	39.333	0.943
IR2	0°	1	4	38.000	0.816
IR3	0°	1	4	41.000	1.291
SURVEY	0°	1	4	45.833	0.689
RED	+30°	1	4	39.500	0.957
BLUE	+30°	1	4	22.500	0.500
GREEN	+30°	1	4	32.333	0.746
IR1	+30°	1	4	31.833	1.462
IR2	+30°	1	4	28.333	1.106
IR3	+30°	1	4	28.167	0.898
SURVEY	+30°	1	4	40.000	0.816
RED	-30°	1	4	48.500	3.452
BLUE	-30°	1	4	33.333	1.247
GREEN	-30°	1	4	43.833	1.863
IR1	-30°	1	4	39.000	1.826
IR2	-30°	1	4	37.500	1.500
IR3	-30°	1	4	41.000	0.816
SURVEY	-30°	1	4	46.167	0.687
RED	-50°	1	4	48.333	2.055
BLUE	-50°	1	4	32.167	0.688
GREEN	-50°	1	4	42.667	1.248
IR1	-50°	1	4	38.000	1.155
IR2	-50°	1	4	36.667	1.247
IR3	-50°	1	4	39.667	0.471
SURVEY	-50°	1	4	45.000	0.577

CAMERA: SPARE

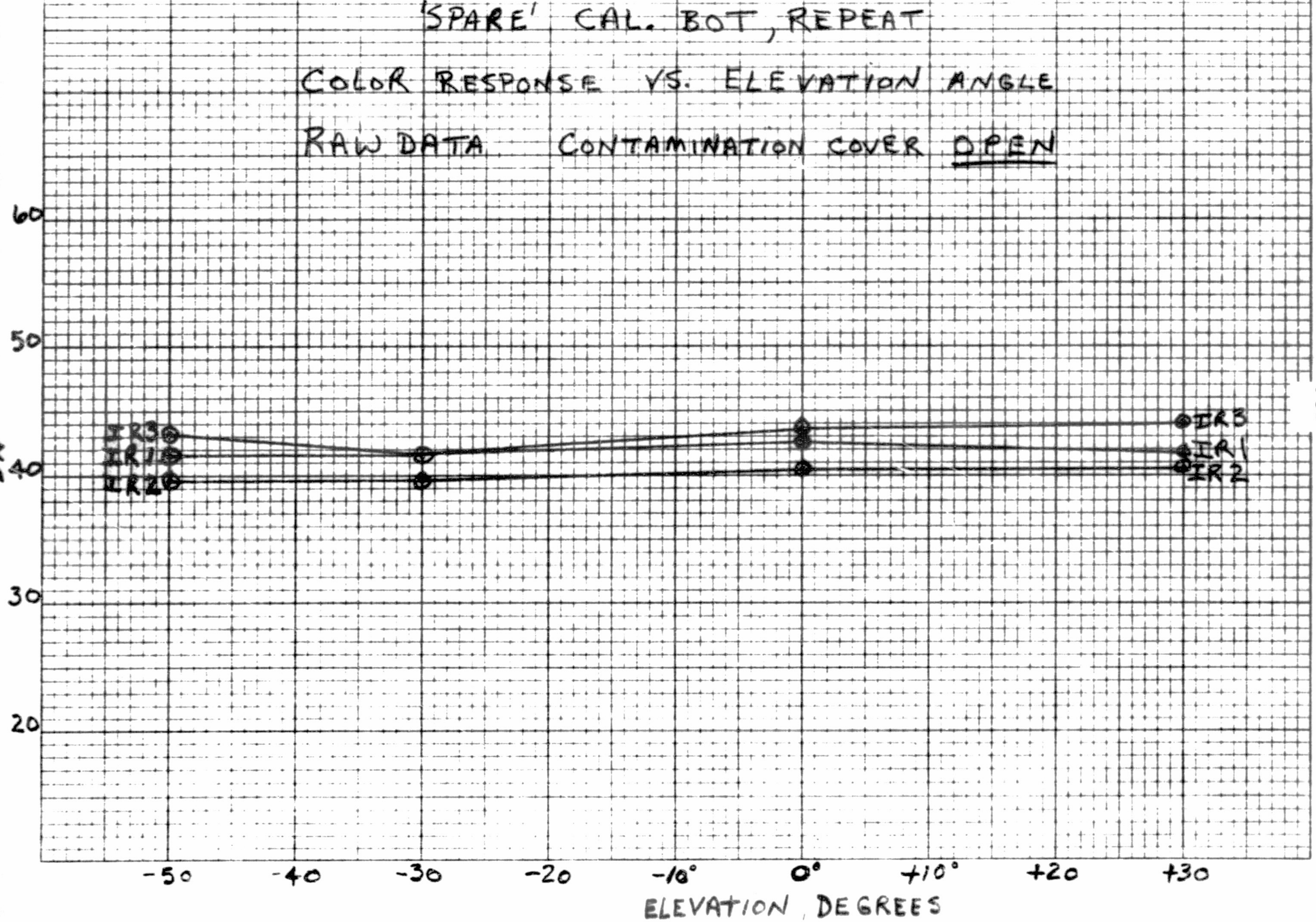
NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U. S. A.

533



533

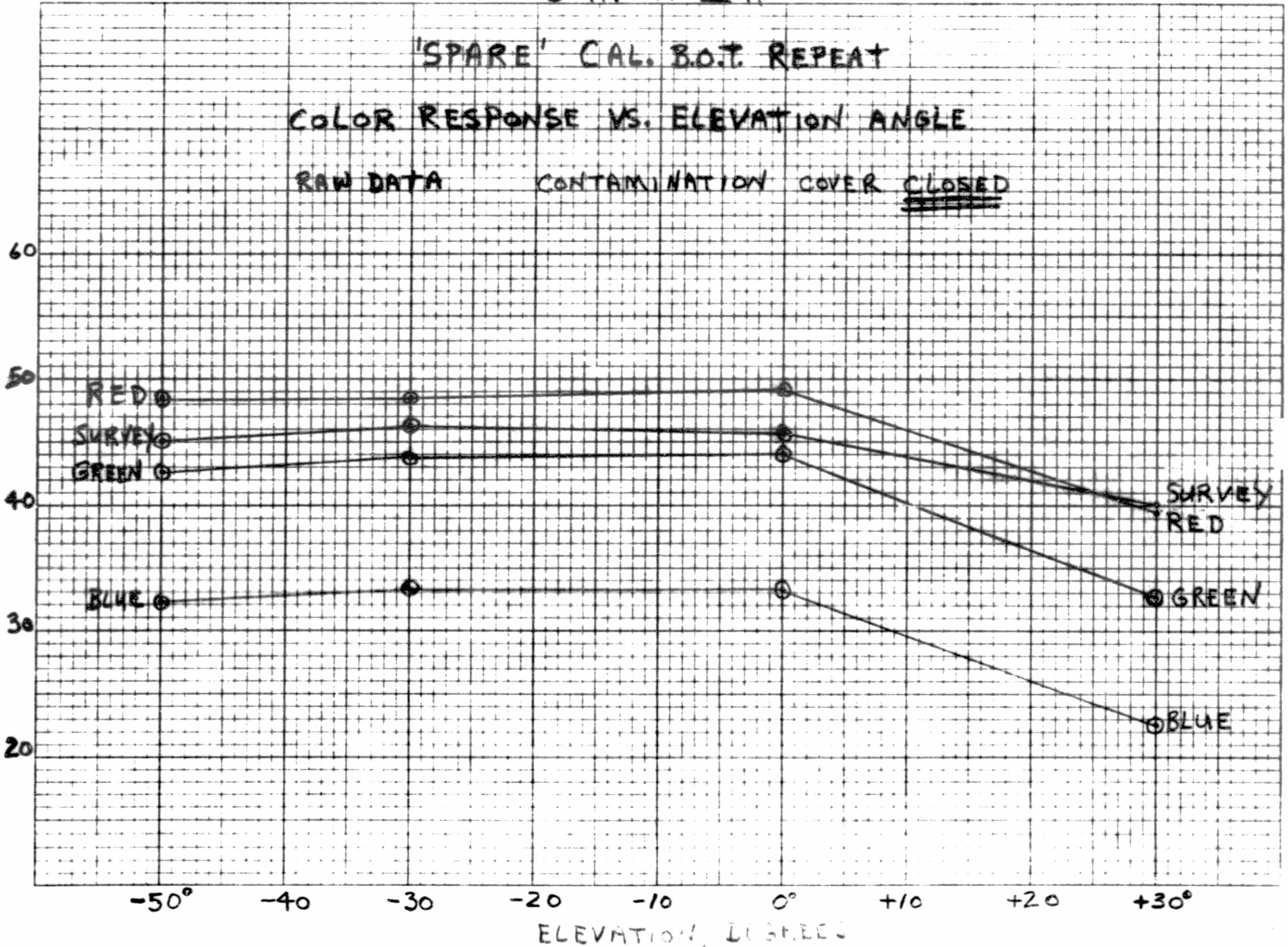
GRAPH IB


'SPARE' CAL. BOT, REPEAT
COLOR RESPONSE VS. ELEVATION ANGLE
RAW DATA CONTAMINATION COVER OPEN
60
50
40
30
20
DN
IR3
IR1
IR2
-50
-40
-30
-20
-10°
0°
+10°
+20
+30
ELEVATION, DEGREES

534

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE IN U.S.A.

GRAPH II A

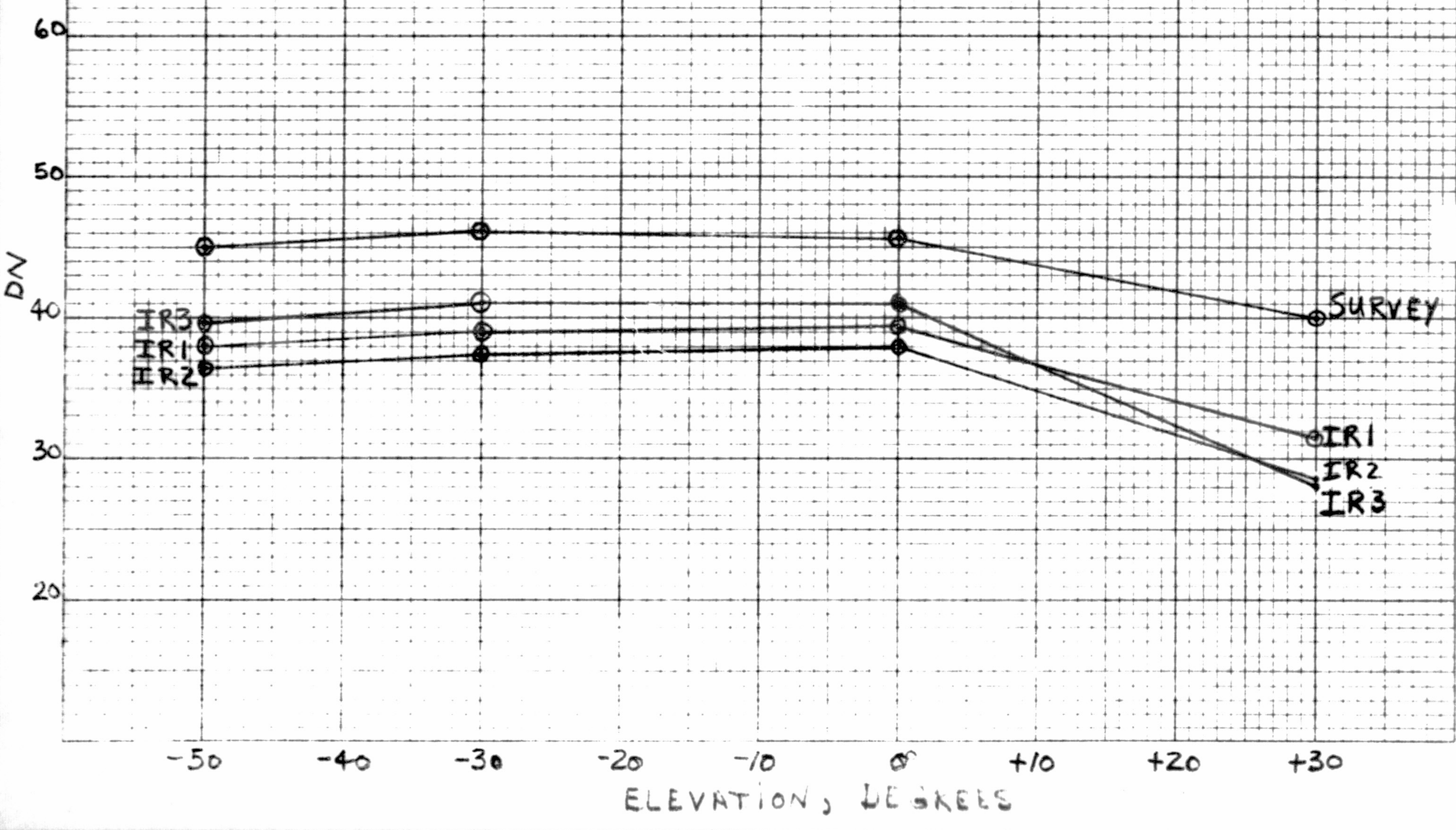


GRAPH II B

'SPARE' CAL. B.O.T. REPEAT

COLOR RESPONSE VS. ELEVATION ANGLE

RAW DATA CONTAMINATION COVER CLOSED



536

III-D

FC-2A CAMERA

537

Morrill

Rechecked MEM
12/13/74

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM

DATE: 9/18/74

CALIBRATION RUN INTERNAL CAL. THERMAL CAL FC-2A

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of Internal Cal #2 and Cal #3 for every diode at -39°C, -23°C and +16°C.

TEST DESCRIPTION Internal Calibrate source at level 2 and level 3 was selected for 3 lines by each diode at 3 temperatures in the Thermal Vacuum chamber.

DATA PROCESSING DESCRIPTION Mean DN and σ were listed for the last 100 samples of the third line in each PDF.

ANALYST Michael Edward Morrill

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

Both the Blue and Green diode channels at gains of 0 and 1 are very noisy (σ2-3) compared to the other channels at lower gains (1, 2). With only three temperature points for this test and the large scatter in DN values, it is difficult to see any trends in temperature dependence.

BB3 appears anomolously low compared to BB1, 2 and 4. This could indicate either low response in this channel or bad data. This channel should be watched carefully.

TABLE I

FC-2A Internal Calibration Thermal Cal Test

VIK221D   PSA Temp +16°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	F.C.
2	BB1	1	1	44.410	1.060	103
3	BB1	1	2	49.860	.551	104
2	BB2	1	1	43.330	1.079	105
3	BB2	1	2	50.0	.632	106
2	BB3	1	1	33.240	.850	107
3	BB3	1	2	35.060	.466	108
2	BB4	1	1	45.330	.908	109
3	BB4	1	2	53.360	.542	110
2	BLUE	1	0	44.260	2.682	111
3	BLUE	1	1	36.850	1.367	112
2	GREEN	1	0	46.040	2.112	113
3	GREEN	1	1	53.170	1.258	114
2	RED	1	1	44.930	.684	115
3	RED	1	2	56.740	.442	116
2	IR1	1	1	39.570	.791	117
3	IR1	1	2	40.010	.501	118
2	IR2	1	1	30.800	1.123	119
3	IR2	1	2	25.620	.719	120
2	IR3	1	1	28.250	.753	121
3	IR3	1	2	25.910	.603	122
2	SURVEY	1	1	41.930	.357	123
3	SURVEY	1	2	51.0	0.0	124

TABLE II

FC-2A Internal Calibration Thermal Cal Test

VIK218D PSA Temp -23°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	F.C.
2	BB1	1	1	38.950	.932	103
3	BB1	1	2	48.720	.552	104
2	BB2	1	1	39.440	1.359	105
3	BB2	1	2	49.280	~~.660~~ .666	106
2	BB3	1	1	30.920	.771	107
3	BB3	1	2	34.440	.555	108
2	BB4	1	1	42.680	.938	109
3	BB4	1	2	51.700	.502	110
2	BLUE	1	0	45.010	3.015	111
3	BLUE	1	1	36.420	1.380	112
2	GREEN	1	0	46.760	2.662	113
3	GREEN	1	1	52.660	1.268	114
2	RED	1	1	41.460	.575	115
3	RED	1	2	57.040	.285	116
2	IR1	1	1	36.350	.793	117
3	IR1	1	2	38.760	.513	118
2	IR2	1	1	30.920	1.017	119
3	IR2	1	2	23.520	.608	120
2	IR3	1	1	27.040	.905	121
3	IR3	1	2	23.580	.569	122
2	SURVEY	1	1	39.400	.491	123
3	SURVEY	1	2	49.860	.378	124

TABLE III

FC-2A Internal Calibration Thermal Cal Test

VIK218D PSA Temp -39°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	F.C.
2	BB1	1	1	37.130	.891	103
3	BB1	1	2	48.590	.552	104
2	BB2	1	1	38.640	1.338	105
3	BB2	1	2	48.410	.724	106
2	BB3	1	1	29.710	.952	107
3	BB3	1	2	34.010	.388	108
2	BB4	1	1	40.140	.813	109
3	BB4	1	2	51.620	.581	110
2	BLUE	1	0	46.180	2.914	111
3	BLUE	1	1	35.840	1.427	112
2	GREEN	1	0	41.190	2.424	113
3	GREEN	1	1	54.660	1.117	114
2	RED	1	1	40.230	.661	115
3	RED	1	2	57.110	.376	116
2	IR1	1	1	35.160	.858	117
3	IR1	1	2	37.700	.539	118
2	IR2	1	1	30.220	1.213	119
3	IR2	1	2	22.420	.635	120
2	IR3	1	1	23.960	.848	121
3	IR3	1	2	22.850	.518	122
2	SURVEY	1	1	38.990	.672	123
3	SURVEY	1	2	49.520	.522	124

542

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 9/5/74

CALIBRATION RUN FC-2A GAIN TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Plots of DN vs. voltage input for all six gain settings and three temperatures.

Tables of the plotted values. Plots of gain percent vs. temperature.

Results summary attached.

TEST DESCRIPTION Various voltages were input to the video amplifier directly via the test connector. 2.5° PDF's were generated at each of five voltage levels for all gain settings and three temperatures.

DATA PROCESSING DESCRIPTION Mean DN and standard deviation were calculated for the 30x30 pixel area (total = 900 pixels) starting at line 80 and sample 200. Linear least squares was used to determine the slope of DN vs. voltage relationship, 90 PDF's were processed.

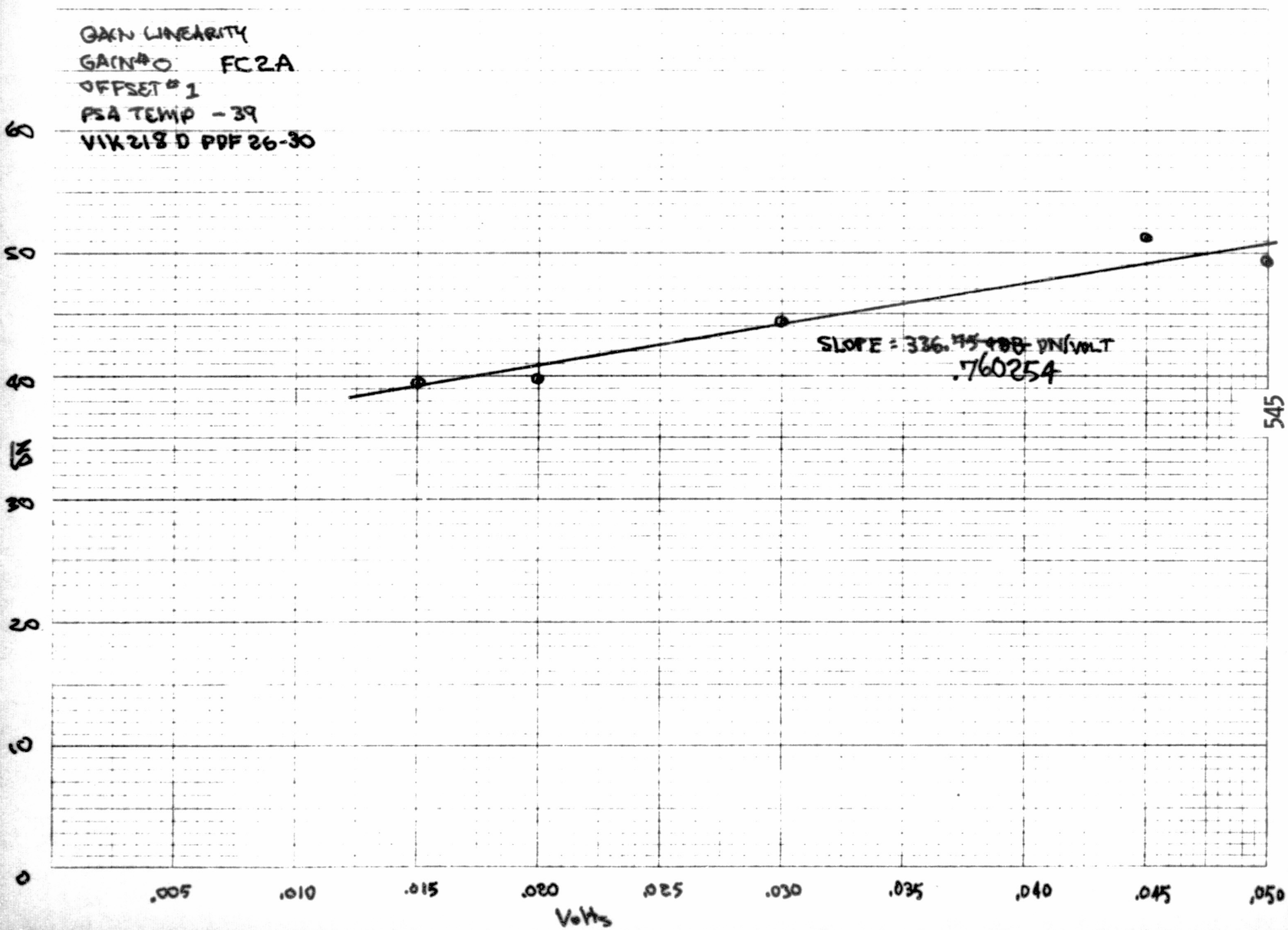
ANALYST Michael Edward Morrill

APPROVAL Michael F. Wolf

RESULTS SUMMARY:

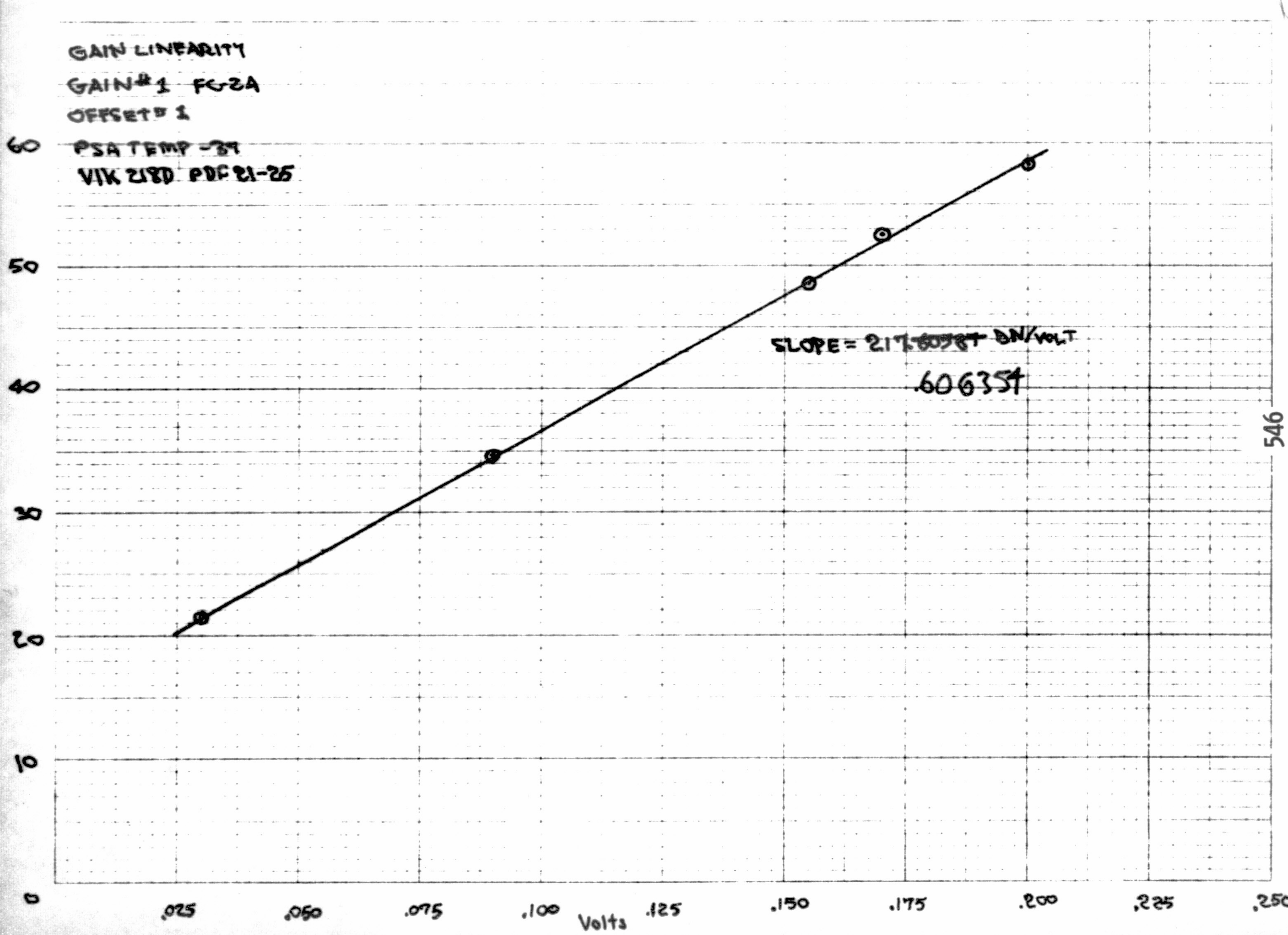
Overall the Thermal Vac Gain Test data for FC-2A looks very good. The σ's range from 0.0 to 0.8 indicating overall low noise in Gain tests. Linear least squares analysis for each test to obtain a best fit slope value also showed very low scatter of data points except for the low temp (-39°C) Gain 0 step. The slope vs. gain steps also fit a 2x relationship very well except for the Gain 0 low temp.

The temperature variation of the % Gain is less than 1% for all gain tests except for low temp Gain 1 and Gain 0.

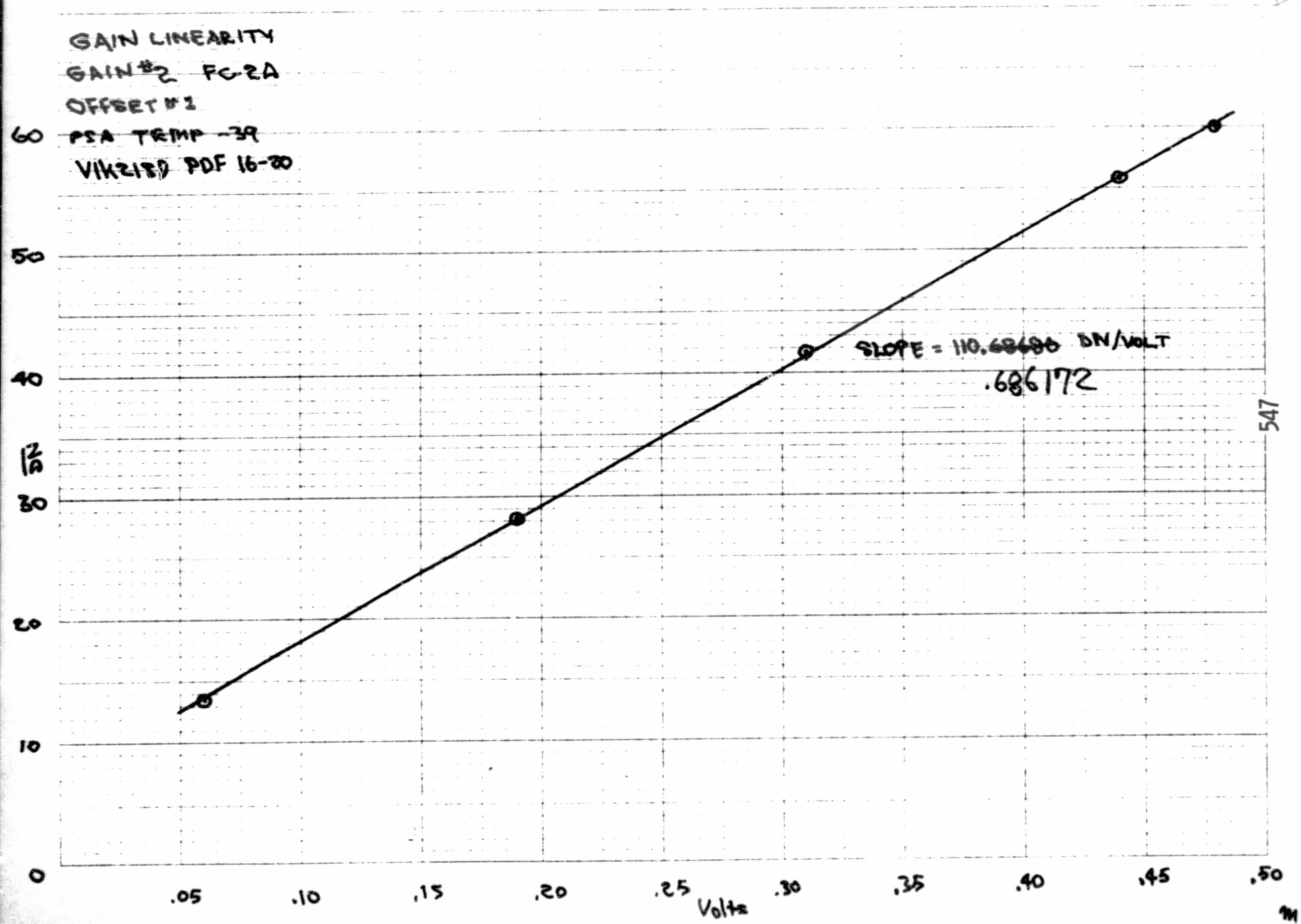

GAIN LINEARITY
GAIN #0
FC2A
OFFSET #1
PSA TEMP -39
VIK218D PDF 26-30
SLOPE = 336.~~75 408~~ DN/VOLT
.760254
60
50
40
DN
30
20
10
0
.005
.010
.015
.020
.025
.030
.035
.040
.045
.050
Volts

545

NO. 340A-10 DIETZGEN GRAPH PAPER
EUGENE DIETZGEN CO.
MADE IN U.S.A.

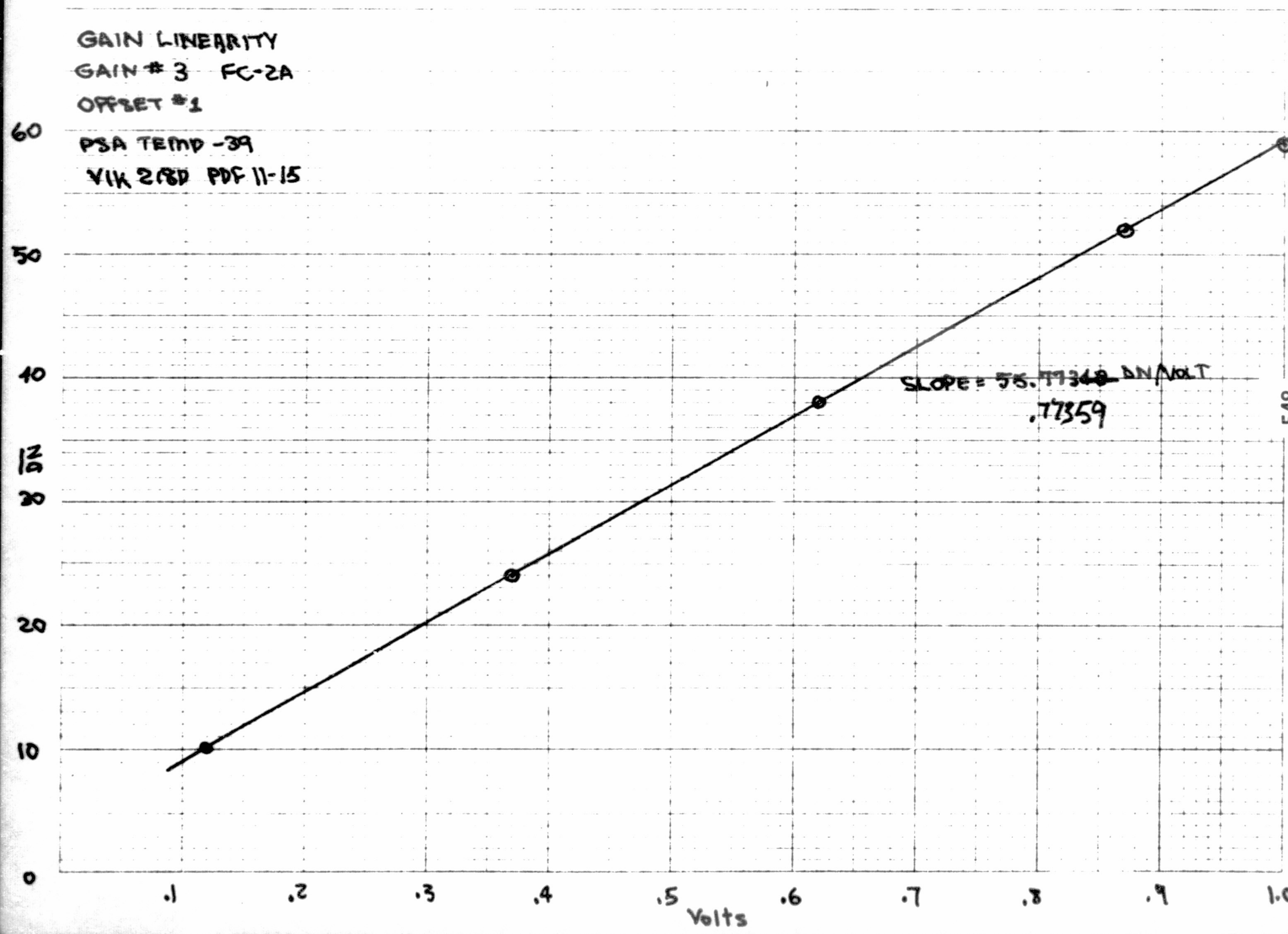


546

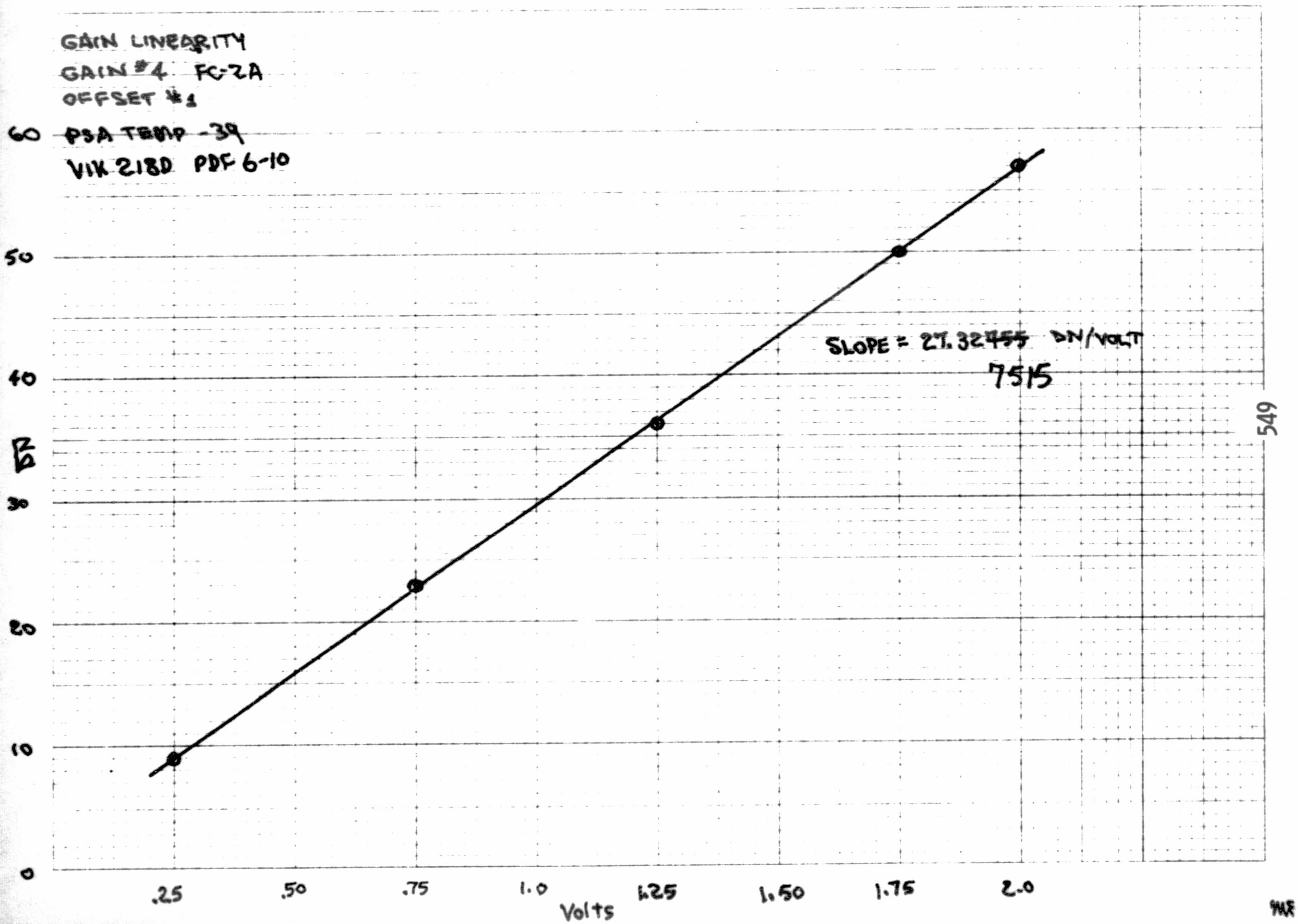

GAIN LINEARITY
GAIN #2 FG-2A
OFFSET #1
PSA TEMP -39
VIK218D PDF 16-20
SLOPE = 110.~~68686~~ DN/VOLT
.686172
60
50
40
30
20
10
0
.05
.10
.15
.20
.25
.30
.35
.40
.45
.50
Volts

547

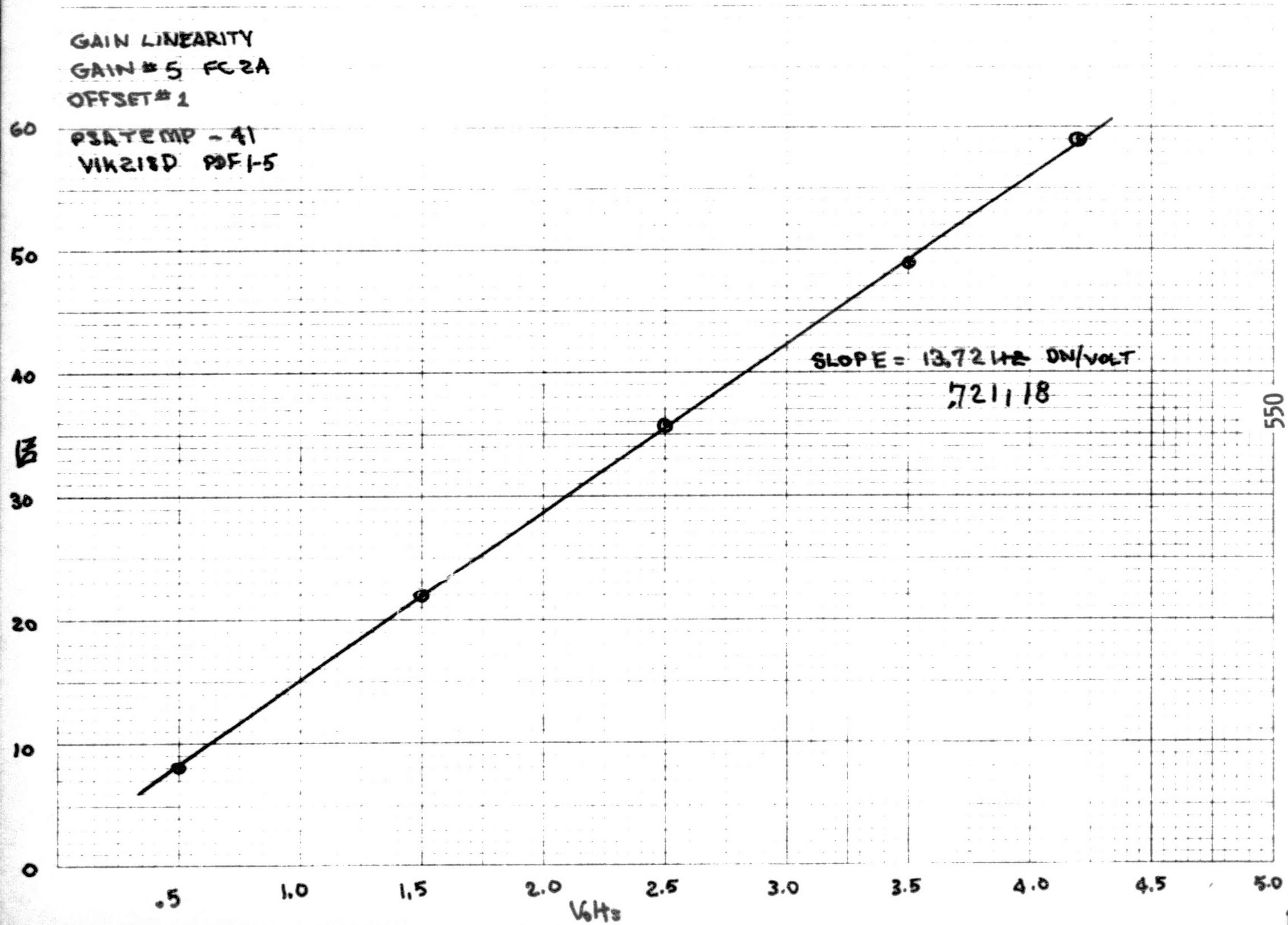
DIETZGEN GRAPH PAPER
EUGENE DIETZGEN CO.



548

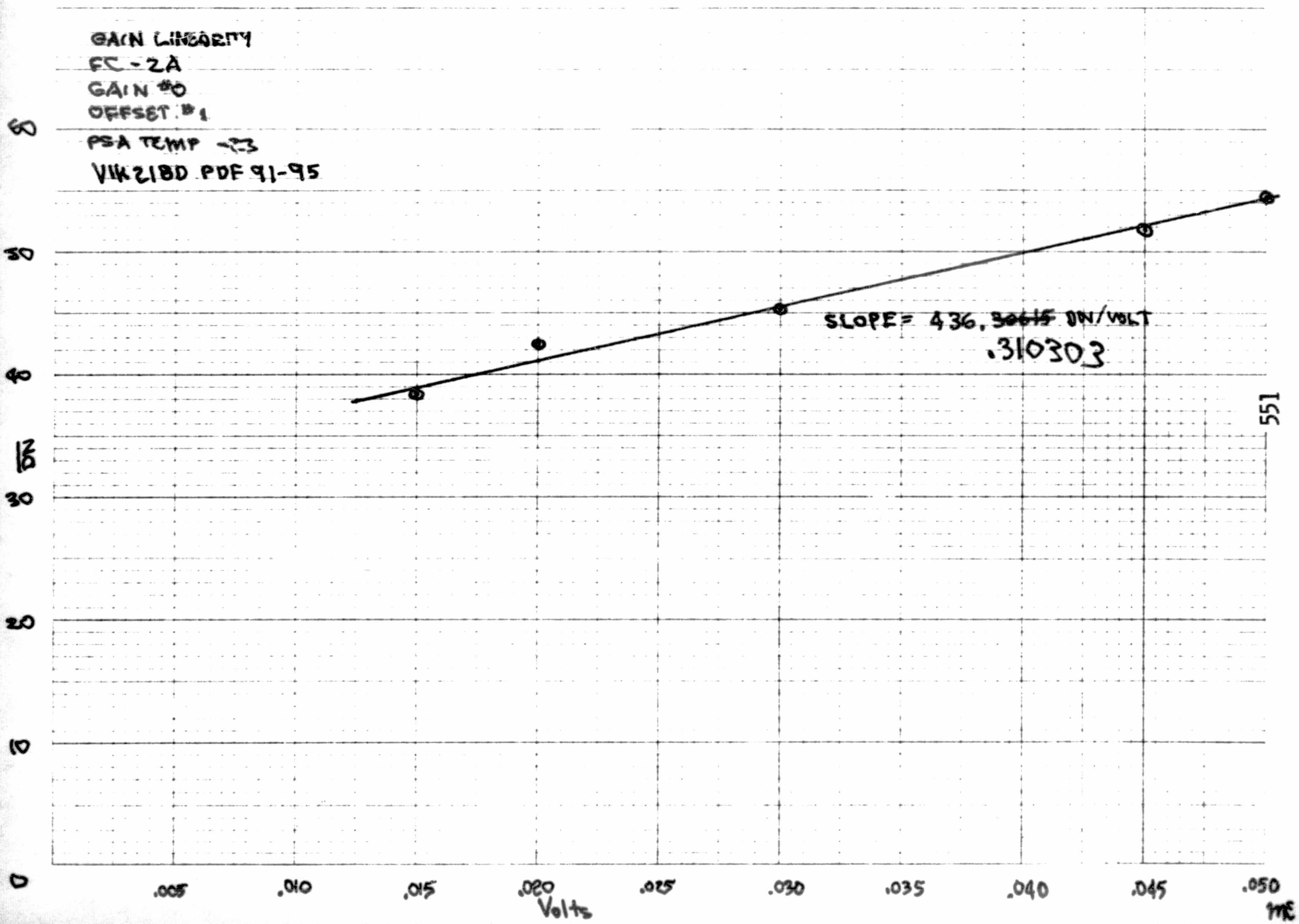

GAIN LINEARITY
GAIN #4 FC-2A
OFFSET #1
PSA TEMP -39
VIK 218D PDF 6-10
SLOPE = 27.32~~455~~ DN/VOLT
7515
DN
0
10
20
30
40
50
60
.25
.50
.75
1.0
1.25
1.50
1.75
2.0
Volts

549

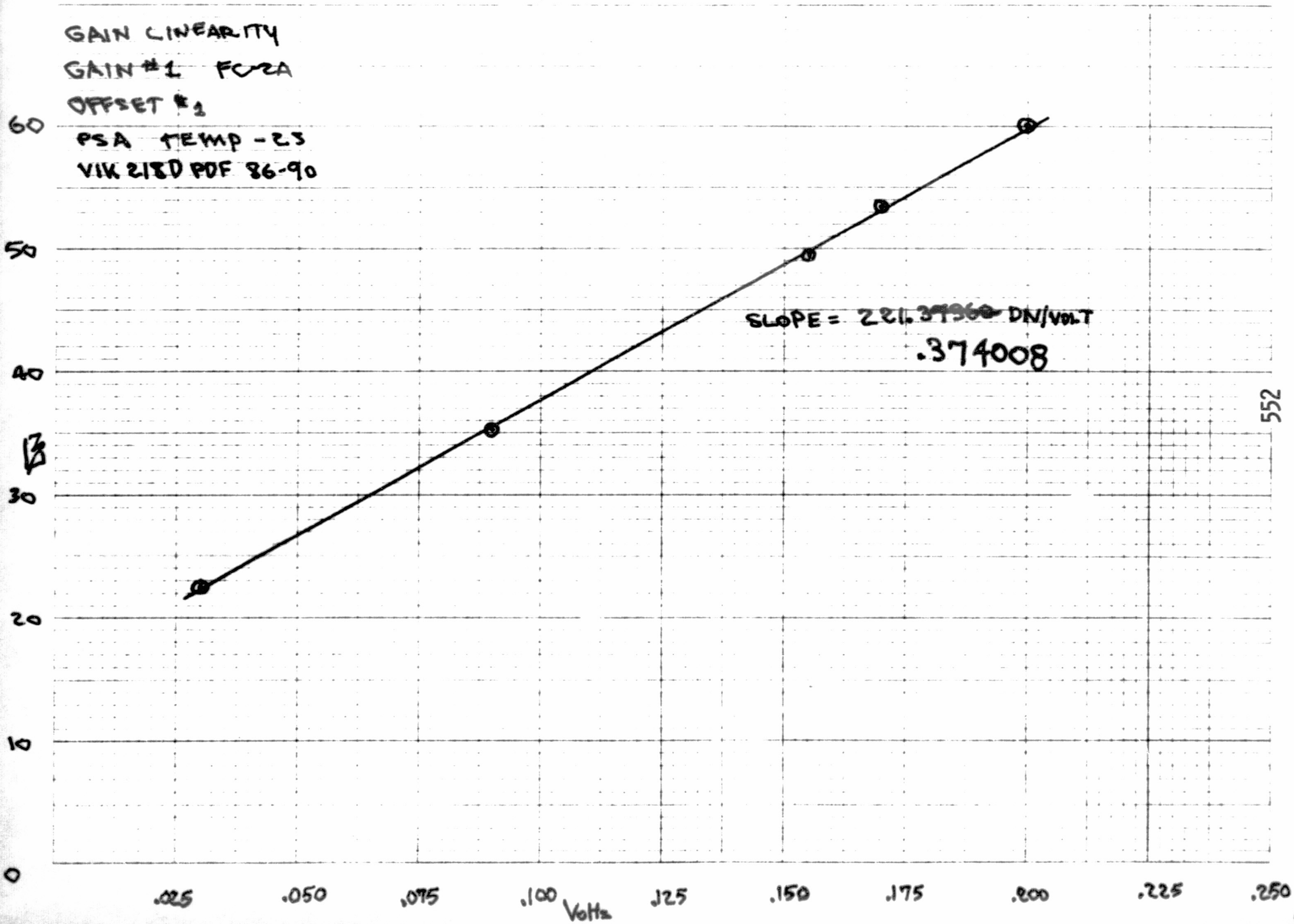

GAIN LINEARITY
GAIN # 5 FC 2A
OFFSET # 1
PSATEMP - 41
VIK218D PDF 1-5
SLOPE = 13.72 Hz DN/VOLT
721, 18
60
50
40
30
20
10
0
.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Volts

550

DIETZGEN GRAPH PAPER EUGENE DIETZGEN CO.

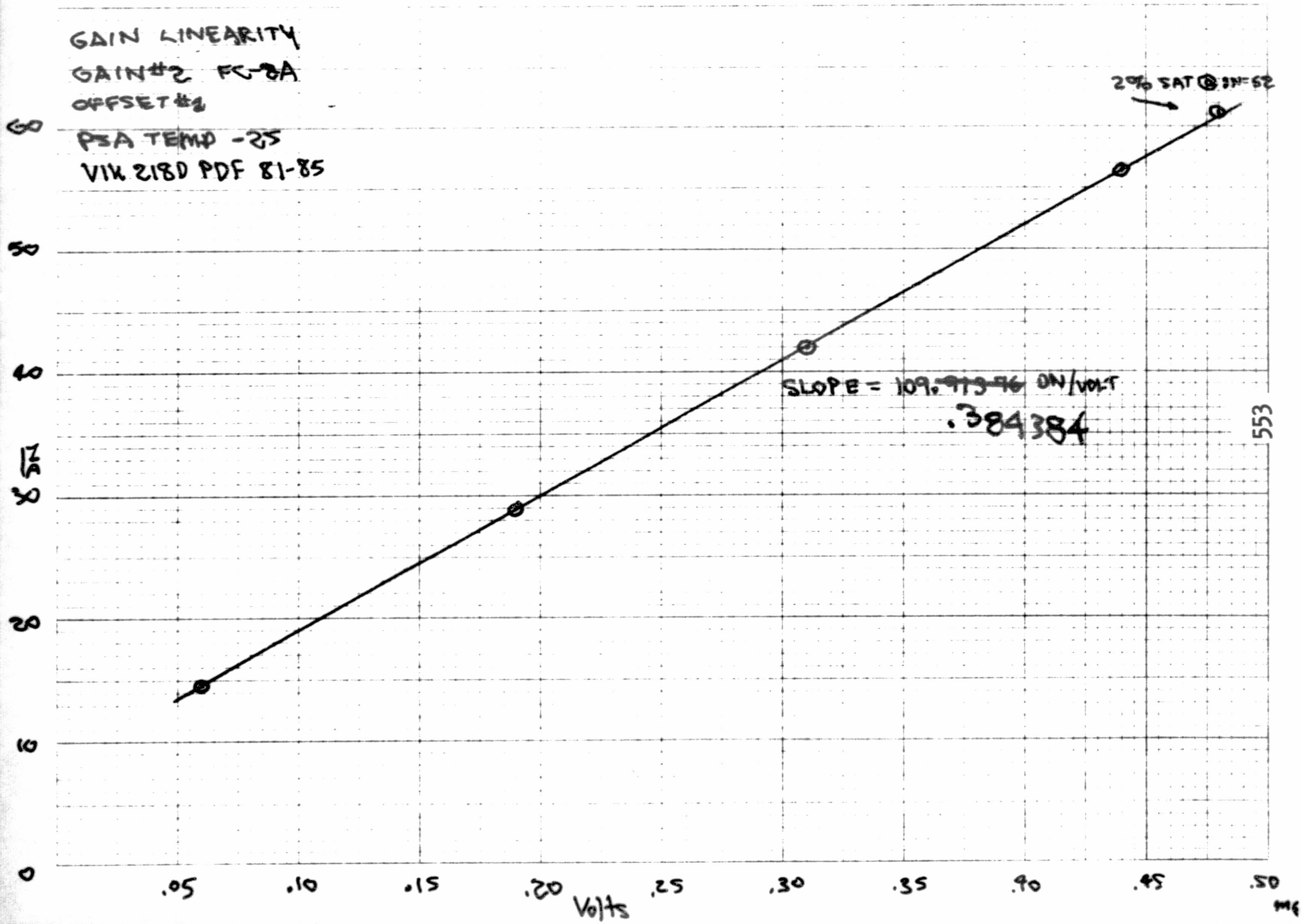


551


GAIN LINEARITY
GAIN #1 FC-2A
OFFSET #1
PSA TEMP -23
VIK 218D PDF 86-90
SLOPE = 221.~~37960~~ DN/VOLT
.374008
0
10
20
30
40
50
60
.025
.050
.075
.100
.125
.150
.175
.200
.225
.250
Volts

552

DIETZGEN GRAPH PAPER
EUGENE DIETZGEN CO.



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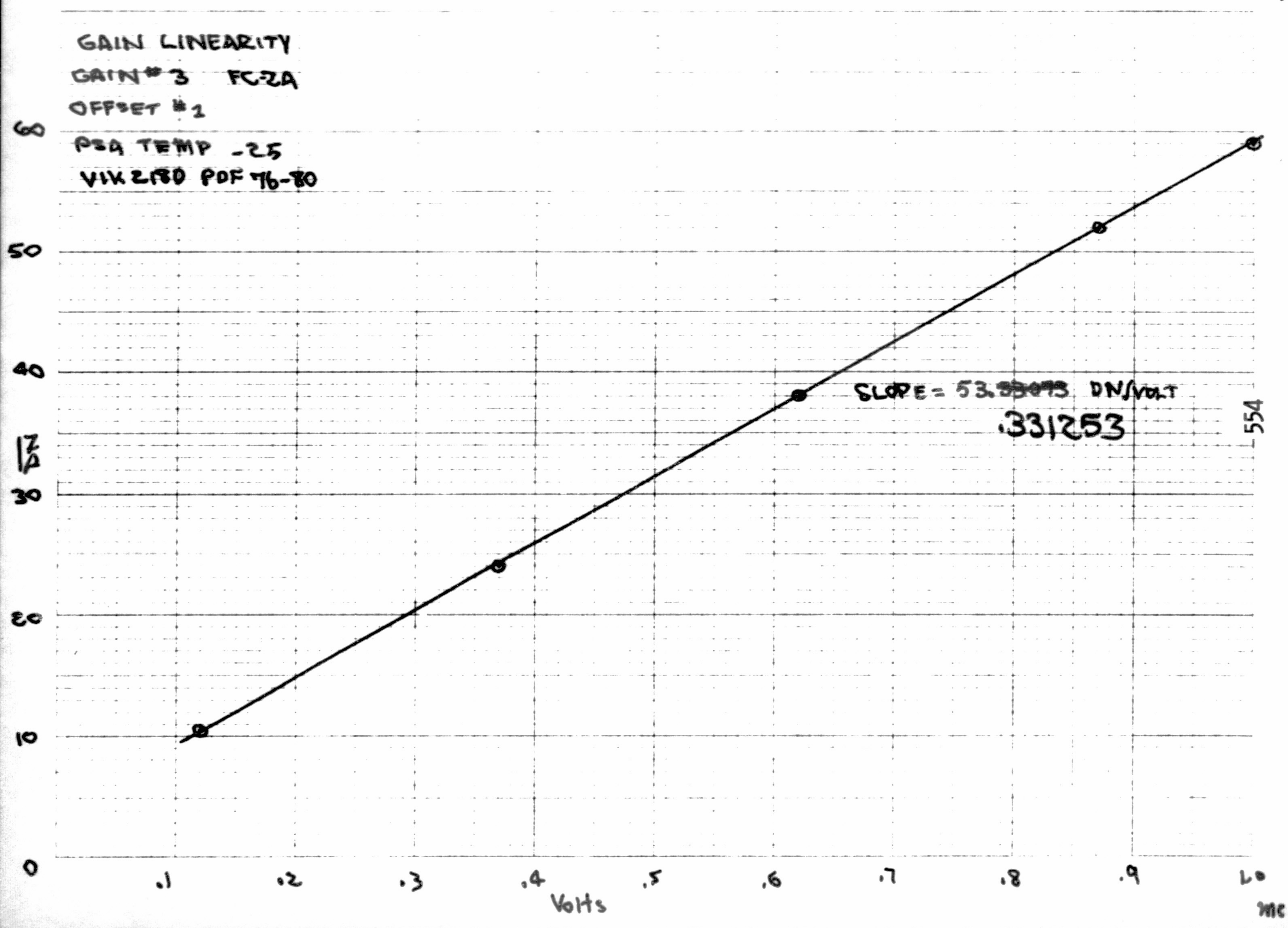
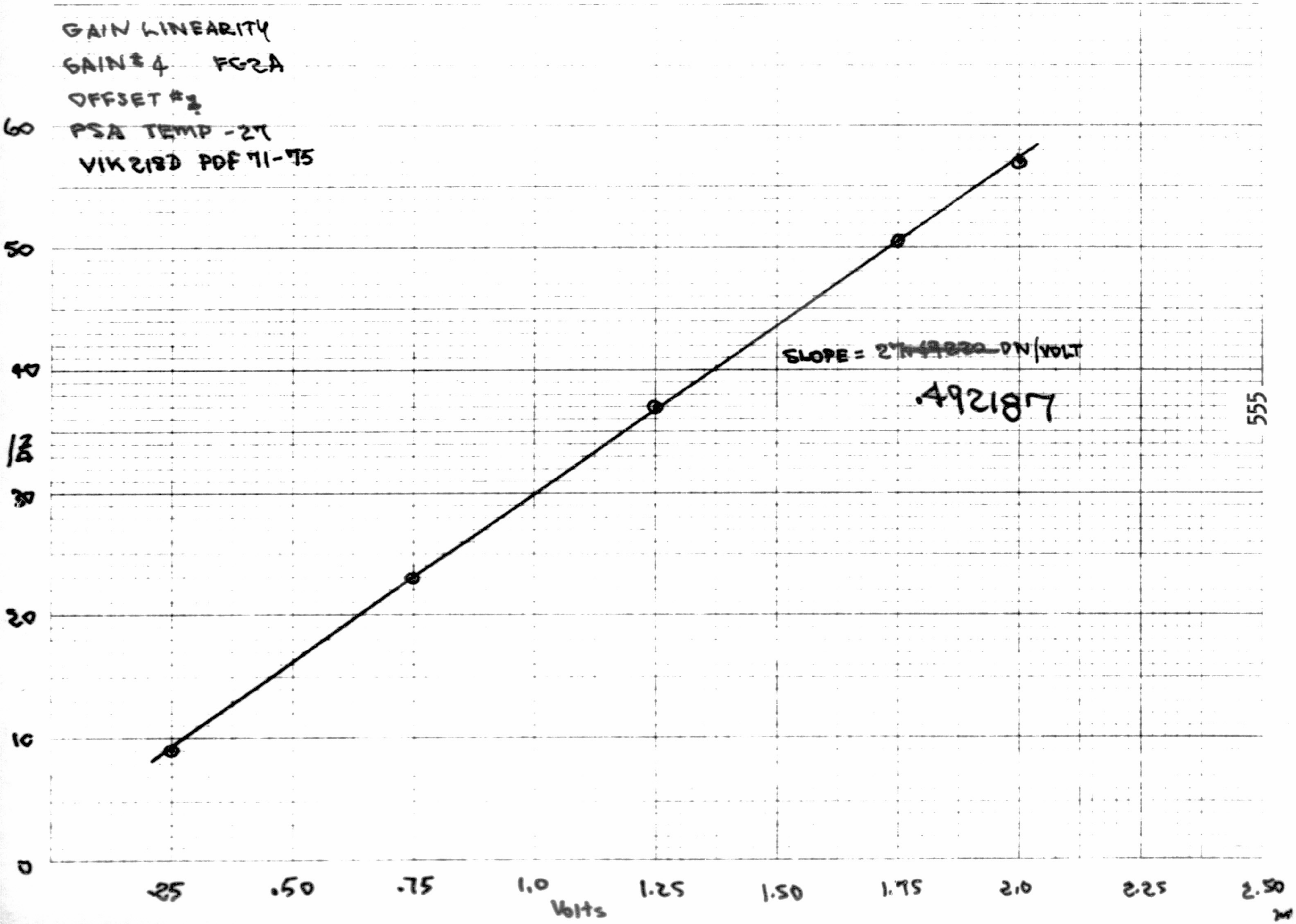


GAIN LINEARITY
GAIN #3 FC-2A
OFFSET #1
PSA TEMP -25
VIK 2180 PDF 76-80
SLOPE = 53.33073 DN/VOLT
.331253
60
50
40
30
20
10
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
Volts

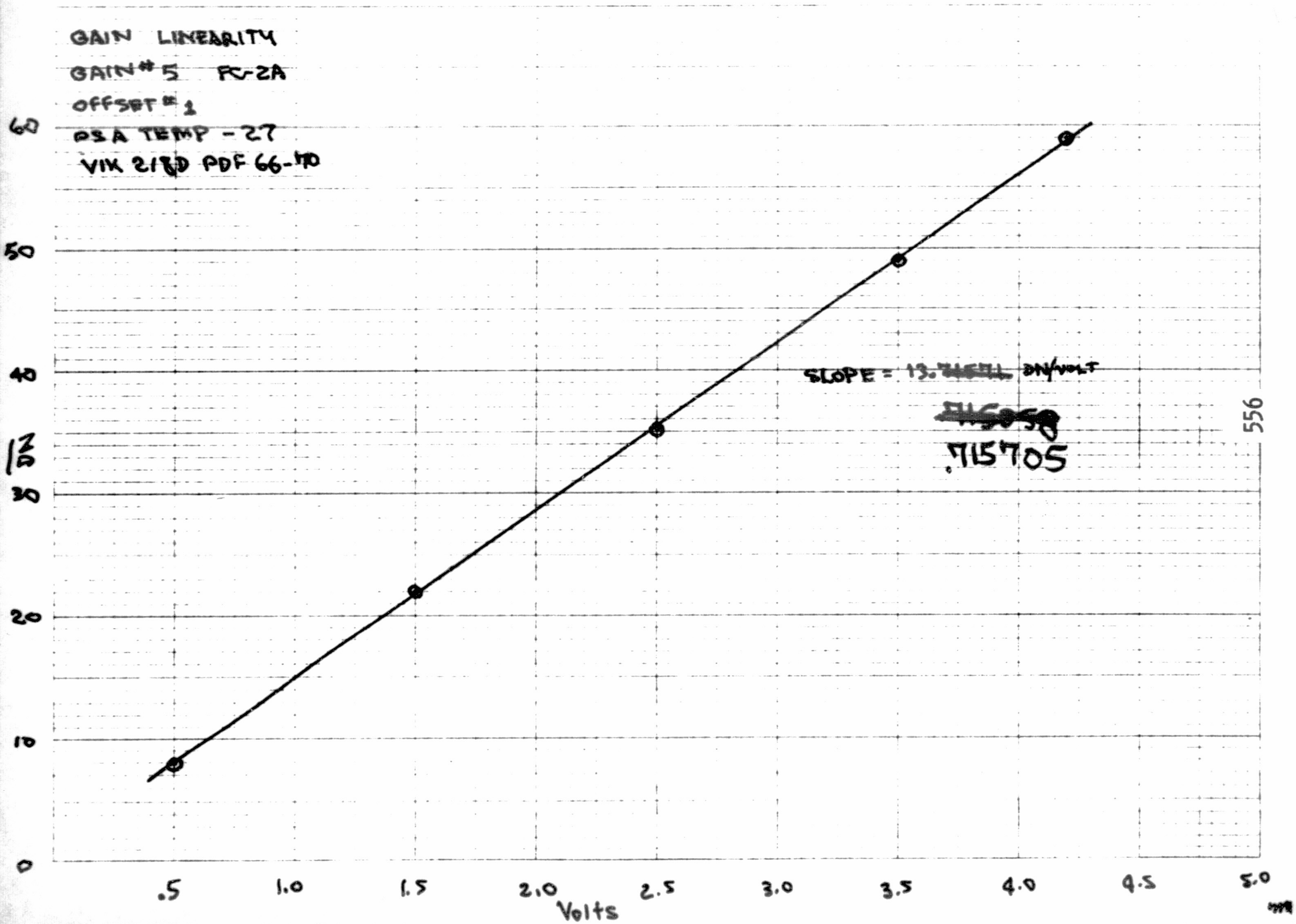
554

NO. 340A DIETZGEN GRAPH PAPER
PER INCH
EUGENE DIETZGEN CO.



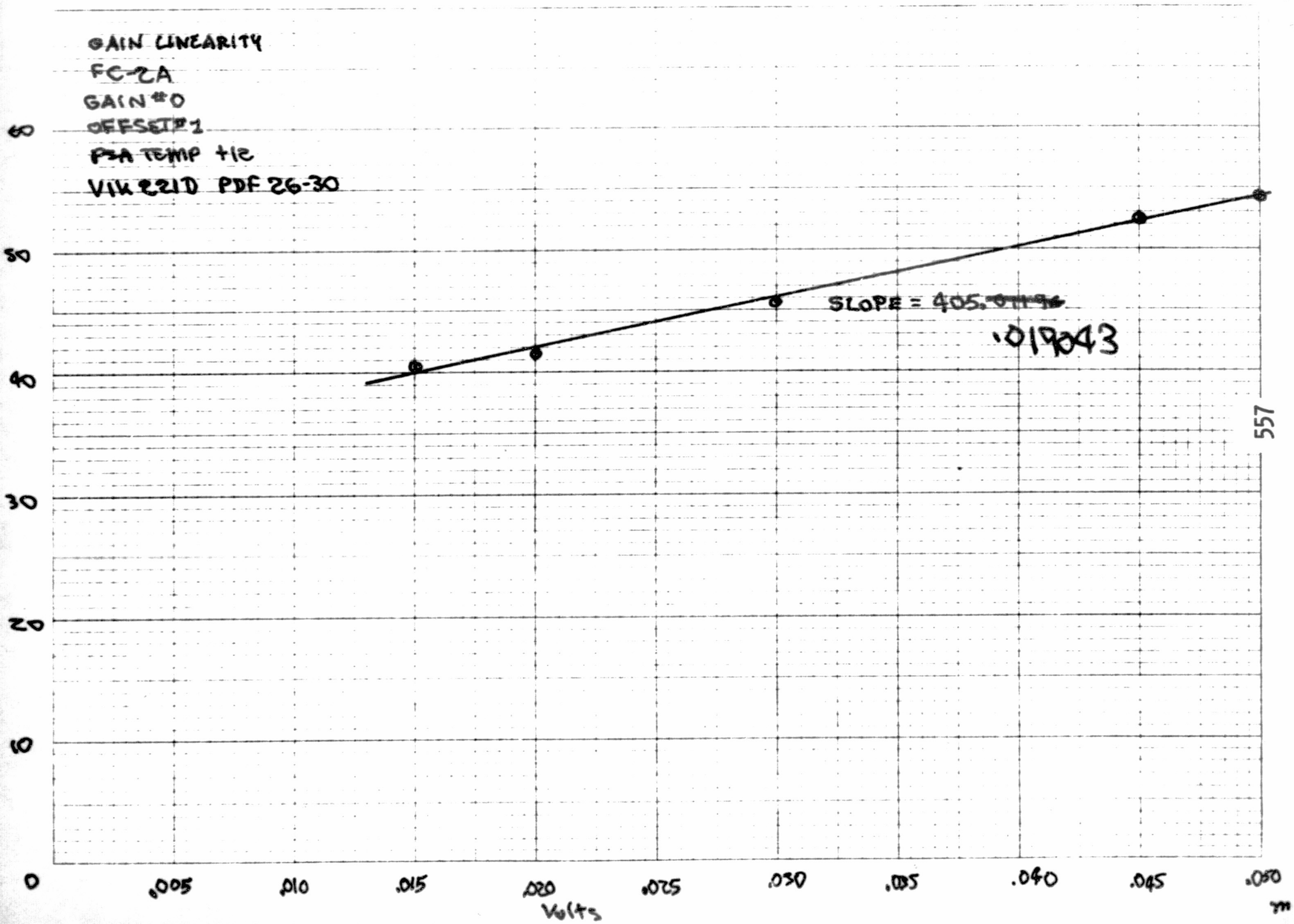
555

DIETZGEN GRAPH PAPER
EUGENE DIETZGEN CO.



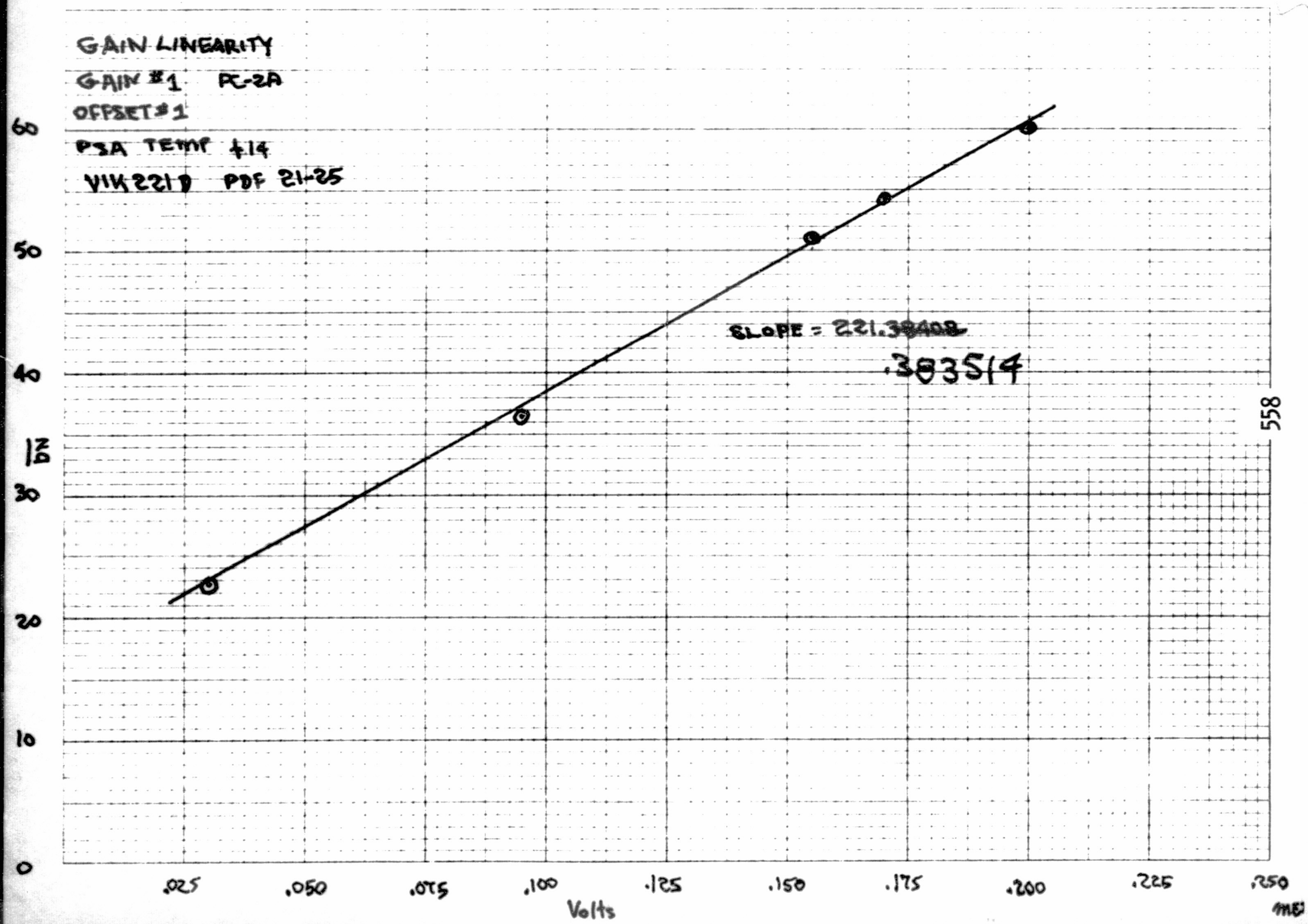
556

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.



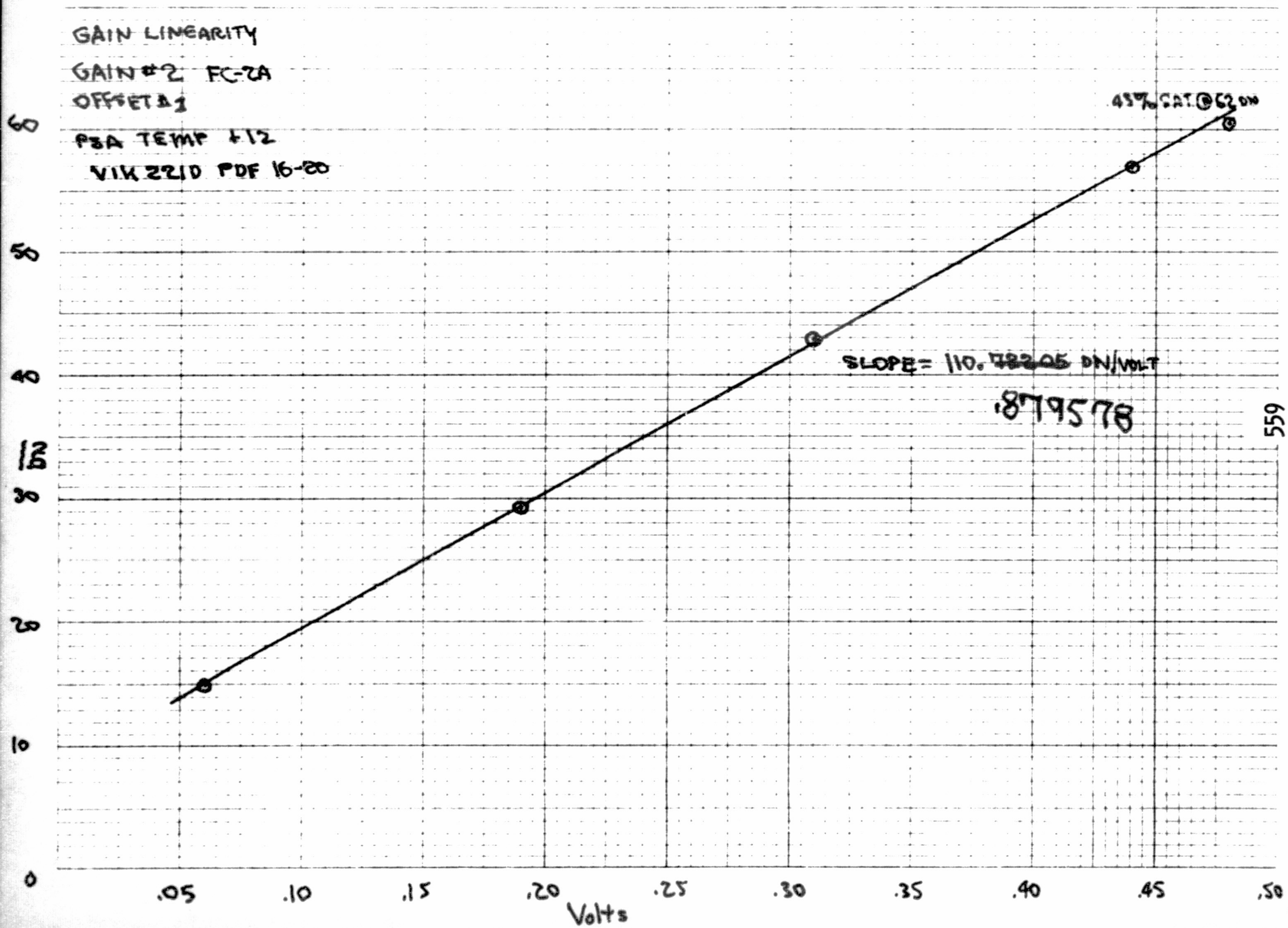
557

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.

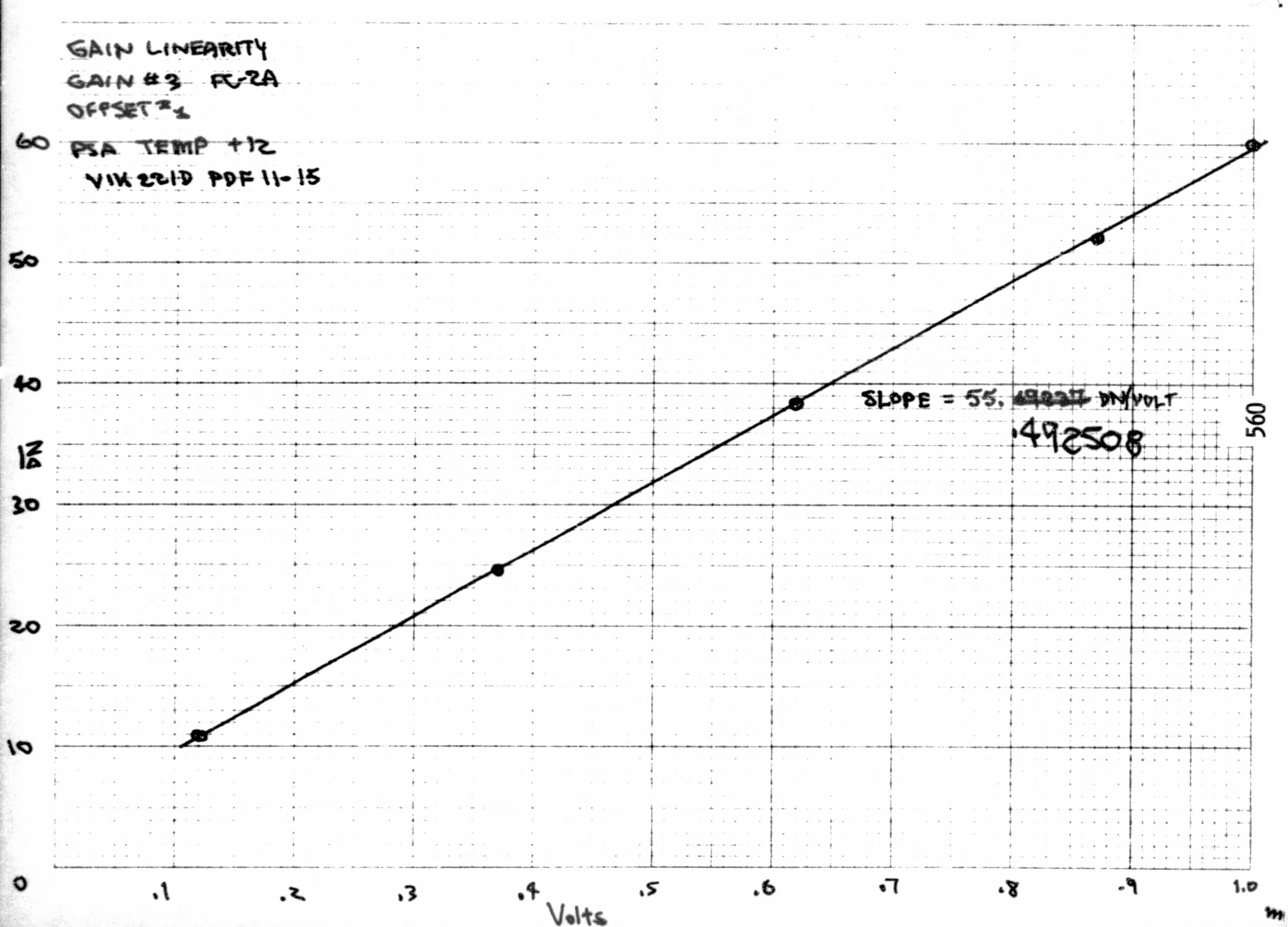


558

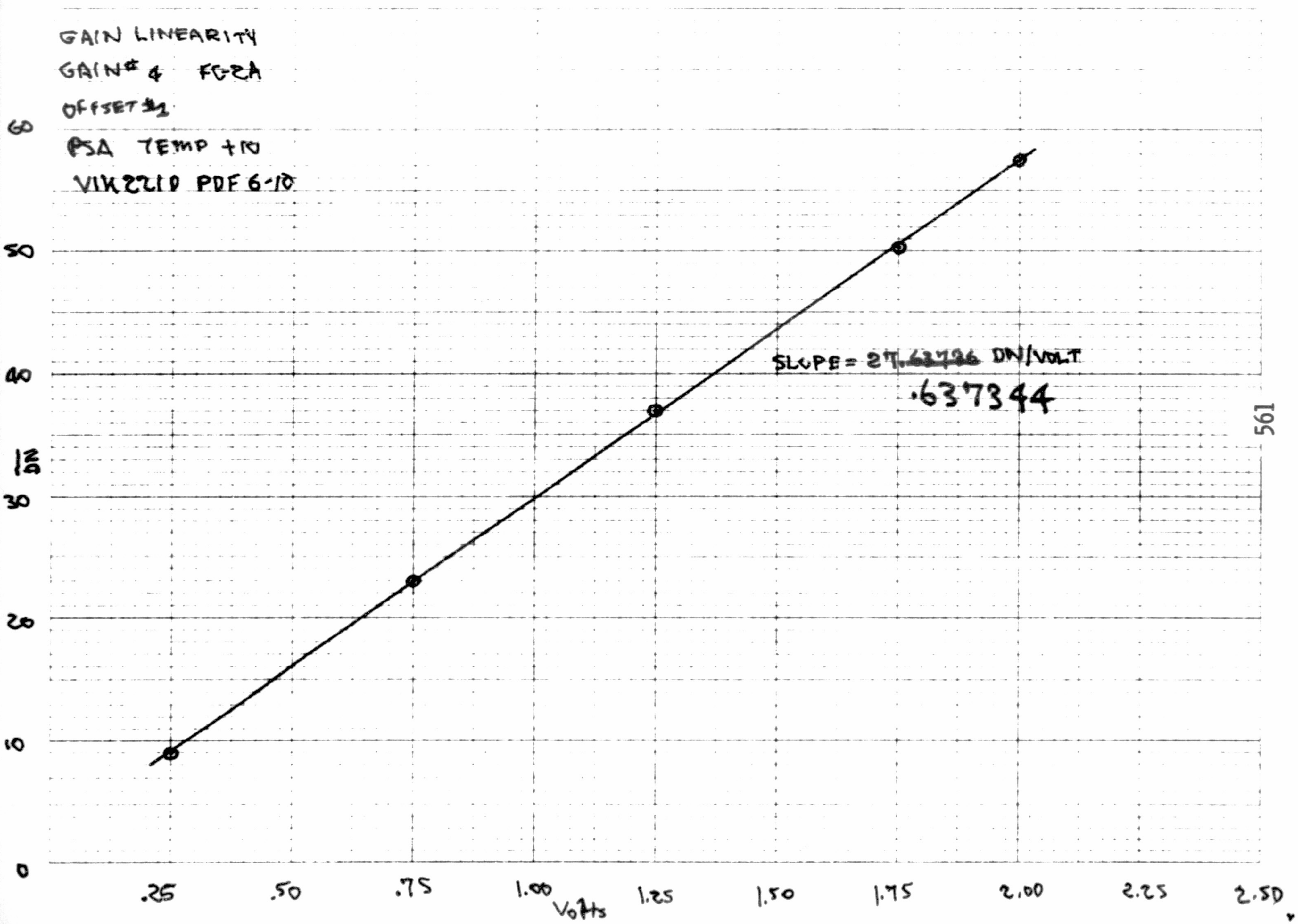
NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.



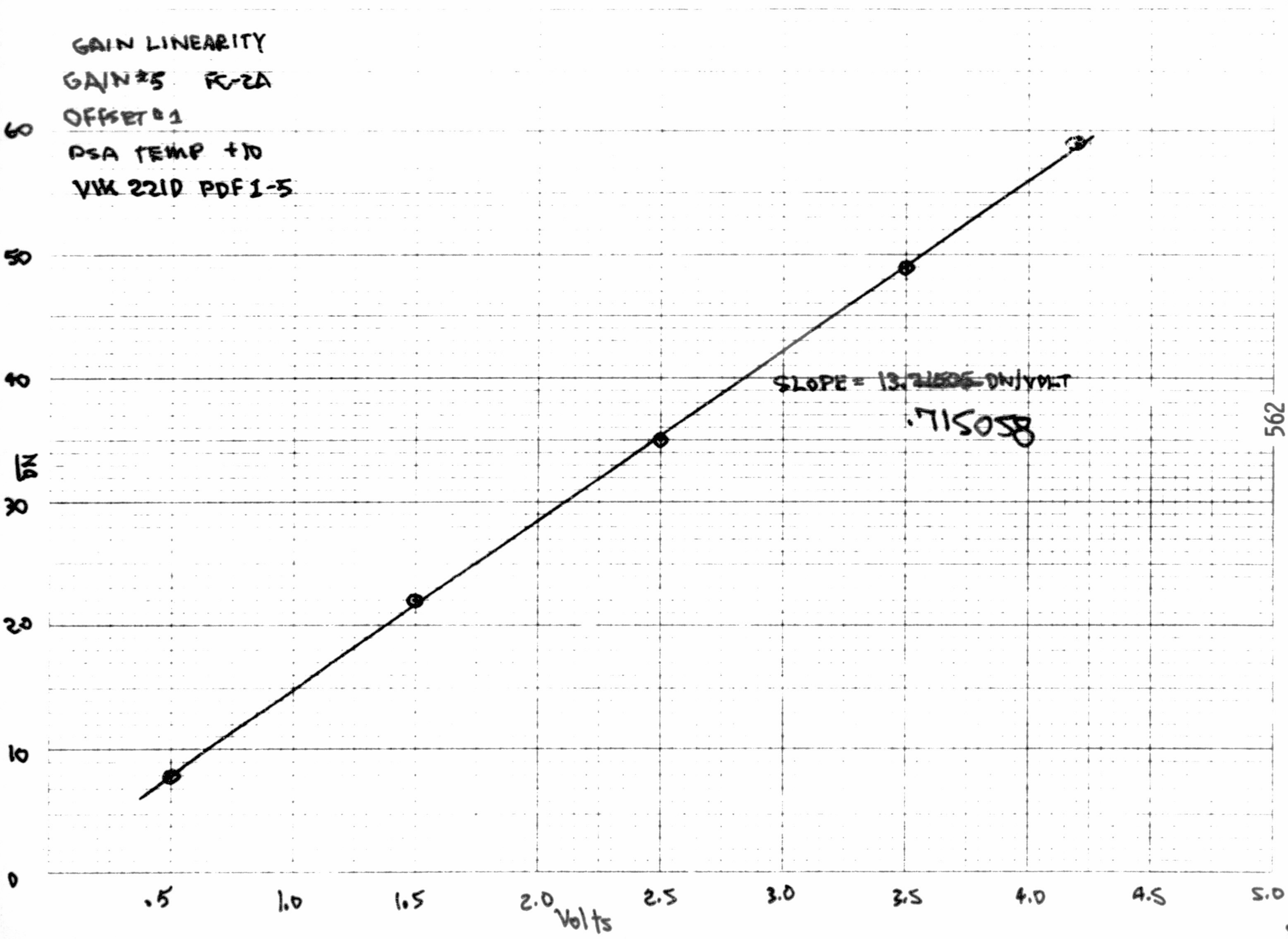
559


GAIN LINEARITY
GAIN #3 FC-2A
OFFSET #1
PSA TEMP +12
VIK 221D PDF 11-15
SLOPE = 55. ~~49237~~ DN/VOLT
.492508
560
60
50
40
30
20
10
0
.1
.2
.3
.4
.5
.6
.7
.8
.9
1.0
Volts

NO. 340A-10 DIETZGEN GRAPH PAPER
EUGENE DIETZGEN CO.



561


GAIN LINEARITY
GAIN #5 FC-2A
OFFSET = 1
PSA TEMP +10
VW 2210 PDF 1-5
SLOPE = 13. DN/VOLT
.715058
DN
0
10
20
30
40
50
60
.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Volts

562

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 26-30 FILES: 26-30

GAIN = 0 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.050	49.228		0.785	26
0.045	51.220		9.773	27
0.030	44.384		0.780	28
0.020	39.832		0.784	29
0.015	39.531		0.745	30

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 21-25 FILES: 21-25

GAIN = 1 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.200	58.257		0.447	21
0.170	52.433		0.498	22
0.155	48.512		0.502	23
0.090	34.706		0.464	24
0.030	21.416		0.509	25

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 16-20 FILES: 16-20

GAIN = 2 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.48	60.0		0.0	16
0.44	55.952		0.265	17
0.31	41.604		0.522	18
0.19	28.128		0.334	19
0.06	13.666		0.508	20

565

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 11-15 FILES: 11-15

GAIN = 3 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
1.00	59.0		0.0	11
0.87	52.0		0.0	12
0.62	38.0		0.0	13
0.37	24.0		0.0	14
0.12	10.008		0.088	15

566

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 6-10 FILES: 6-10

GAIN = 4 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	57.0		0.0	6
1.75	50.0		0.0	7
1.25	36.0		0.0	8
0.75	22.952		0.215	9
0.25	9.0		0.0	10

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D   FRAME COUNT: 1-5   FILES: 1-5

GAIN = 5   OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
4.20	59.0	0.0	1
3.20	49.0	0.0	2
2.50	35.897	0.569	3
1.50	22.0	0.0	4
0.50	8.0	0.0	5

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D　　FRAME COUNT: 26-30　　FILES: 26-30

GAIN = 0　　OFFSET = 1

PSA TEMP = -23°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.050	54.304	0.764	26
0.045	51.939	0.804	27
0.030	45.156	0.772	28
0.020	42.200	0.806	29
0.015	38.247	0.776	30

569

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 21-25 FILES: 86-90

GAIN = 1 OFFSET = 1

PSA TEMP = -23°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.200	60.080	0.368	21
0.170	53.387	0.502	22
0.155	49.486	0.516	23
0.090	35.102	0.410	24
0.030	22.510	0.500	25

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 16-20 FILES: 81-85

GAIN = 2 OFFSET = 1

PSA TEMP = -25°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.48	61.027*	✓	0.191 ✓	16
0.44	56.340		0.475	17
0.31	42.0		0.082	18
0.19	29.0		0.0	19
0.06	14.734		0.442	20

*2% Saturated at DN=62

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 11-15 FILES: 76-80

GAIN = 3 OFFSET = 1

PSA TEMP = -25°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
1.00	59.0		0.0	11
0.87	52.0		0.0	12
0.62	38.001		0.047	13
0.37	24.0		0.0	14
0.12	10.488		0.500	15

572

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 6-10 FILES: 71-75

GAIN = 4 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	57.0		0.0	6
1.75	50.562		0.499	7
1.25	37.0		0.0	8
0.75	23.0		0.0	9
0.25	9.0		0.0	10

573

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK218D FRAME COUNT: 1-5 FILES: 66-70

GAIN = 5 OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	59.0		0.0	1
3.50	49.0		0.0	2
2.50	35.098		0.418	3
1.50	22.0		0.0	4
0.50	8.0		0.0	5

574

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK221D FRAME COUNT: 26-30 FILES: 26-30

GAIN = 0 OFFSET = 1

PSA TEMP = +14°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.050	54.189	0.767	26
0.045	52.451	0.712	27
0.030	45.692	0.728	28
0.020	41.698	0.719	29
0.015	40.520	0.677	30

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK221D   FRAME COUNT: 21-25   FILES: 21-25

GAIN = 1   OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.200	60.078	0.364	21
0.170	54.298	0.463	22
0.155	51.013	0.350	23
0.090	36.490	0.501	24
0.030	22.734	0.447	25

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK221D FRAME COUNT: 16-20 FILES: 16-20

GAIN = 2 OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.48	61.448*	✓	0.527	16
0.44	57.007		0.125	17
0.31	42.951		0.219	18
0.19	29.242		0.478	19
0.06	15.0		0.0	20

*43% Saturated at 62 DN

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK221D   FRAME COUNT: 11-15   FILES: 11-15

GAIN = 3   OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
1.00	60.0 ✓	0.0 ✓	11
0.87	52.112	0.318	12
0.62	38.410	0.493	13
0.37	24.520	0.500	14
0.12	11.0	0.0	15

578

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK221D **FRAME COUNT:** 6-10 **FILES:** 6-10

GAIN = 4 **OFFSET** = 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
2.00	57.502	0.573	6
1.75	50.373	0.483	7
1.25	37.0	0.0	8
0.75	23.0	0.0	9
0.25	9.0	0.0	10

FC-2A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK221D FRAME COUNT: 1-5 FILES: 1-5

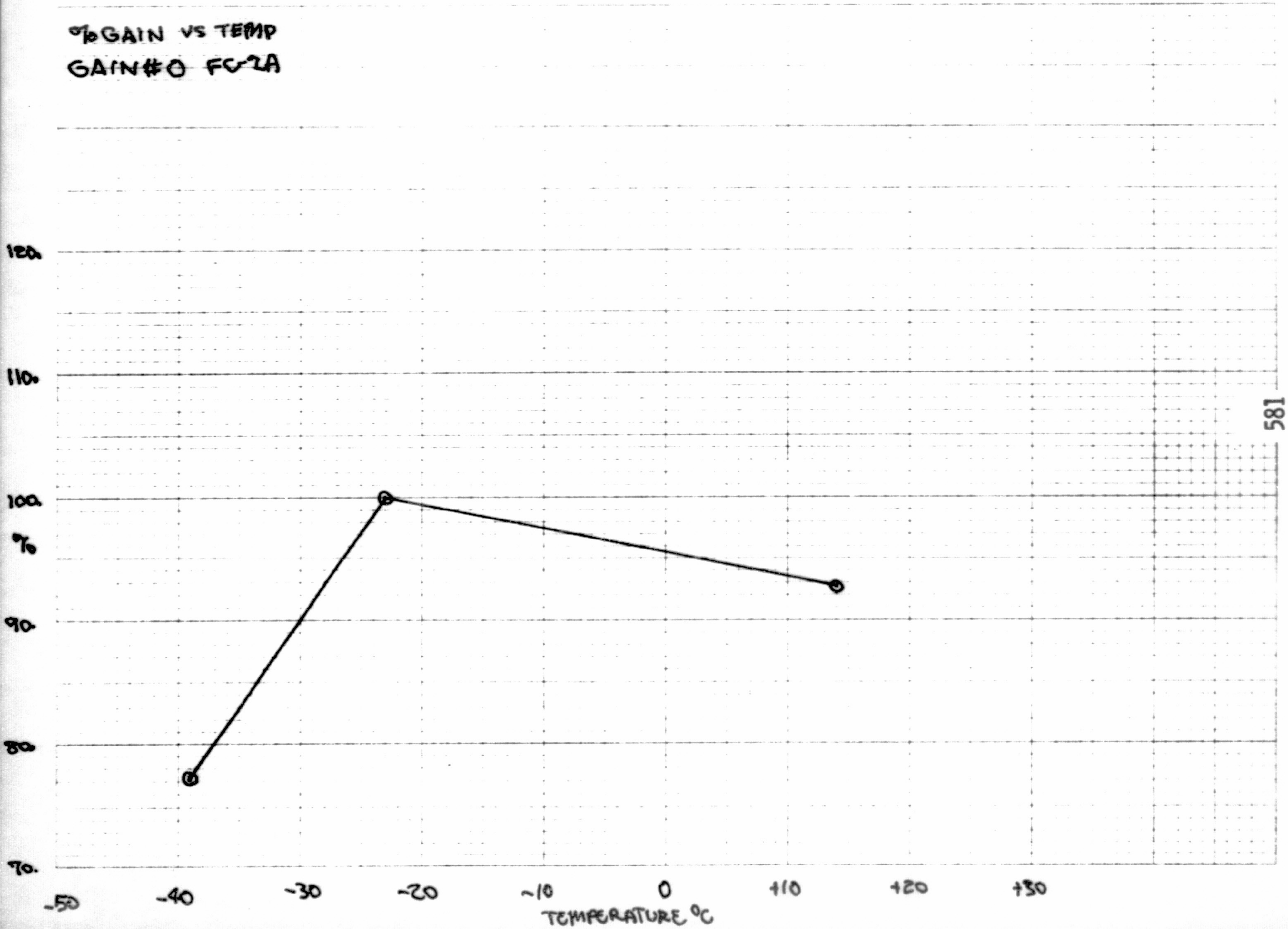
GAIN = 5 OFFSET = 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	59.0		0.0	1
3.50	49.0		0.0	2
2.50	35.0		0.0	3
1.50	22.0		0.0	4
0.50	8.0		0.0	5

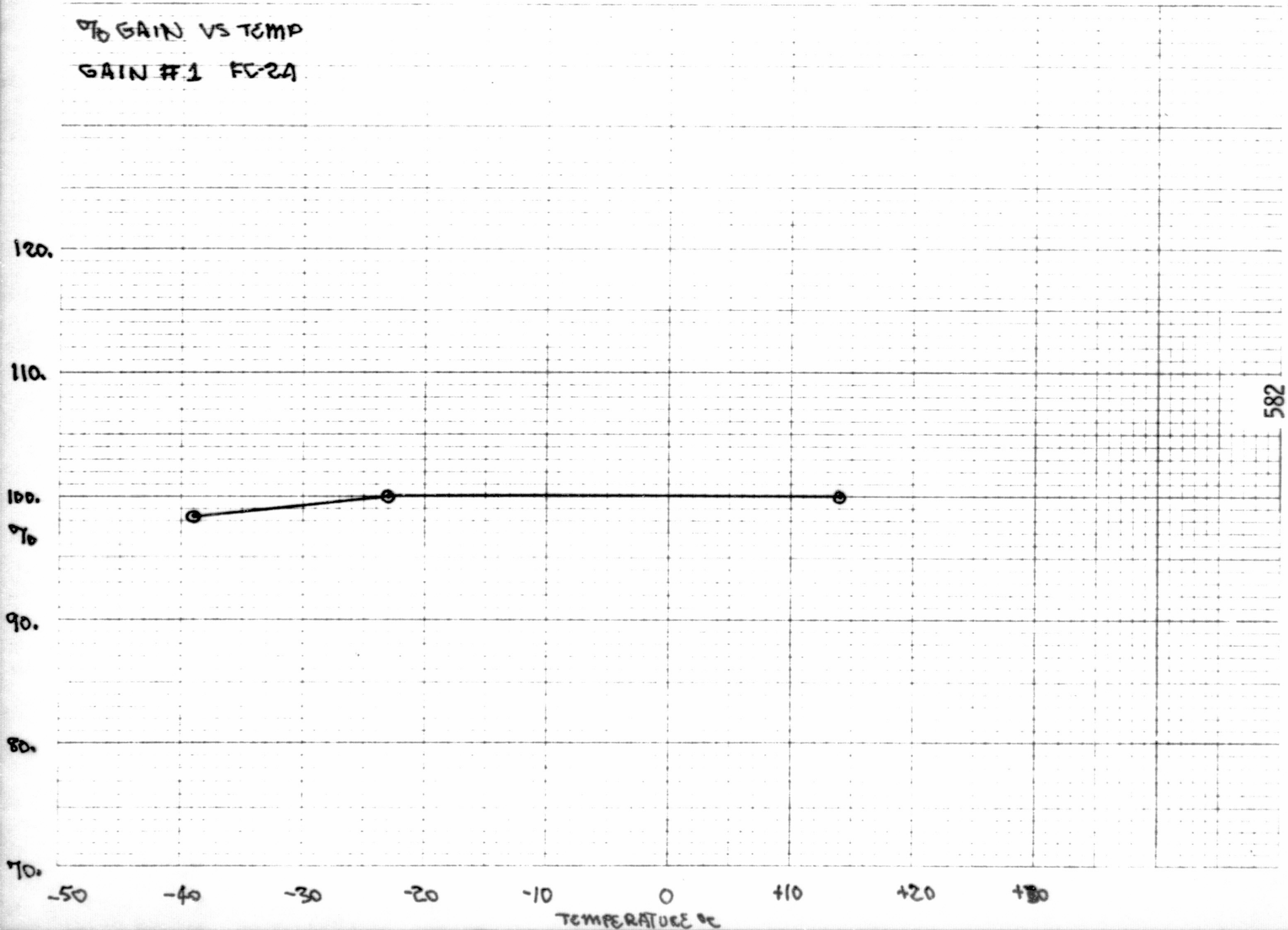
580



%GAIN VS TEMP
GAIN#0 FC-2A
120
110
100
%
90
80
70
-50
-40
-30
-20
-10
0
+10
+20
+30
TEMPERATURE °C

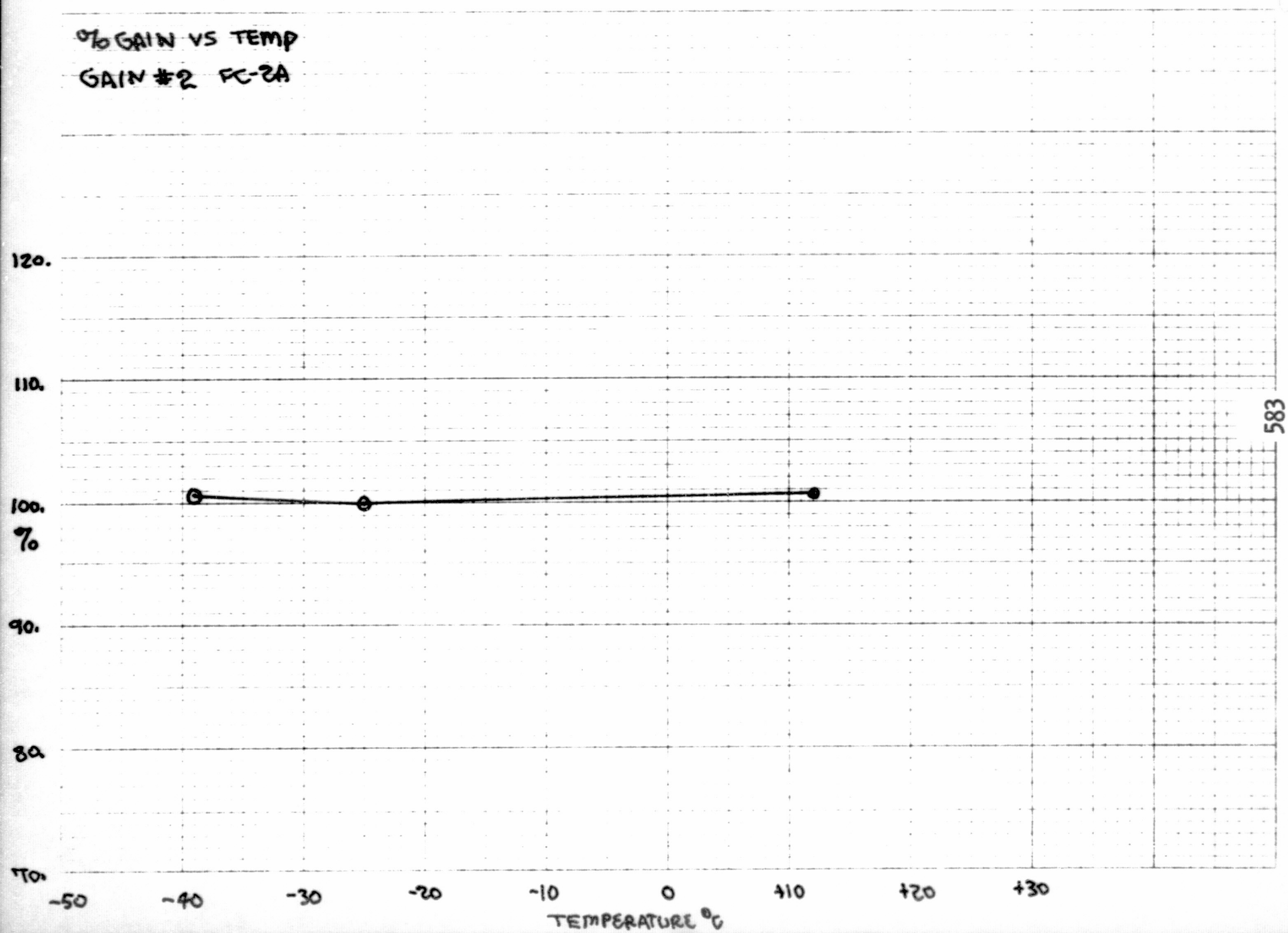
581

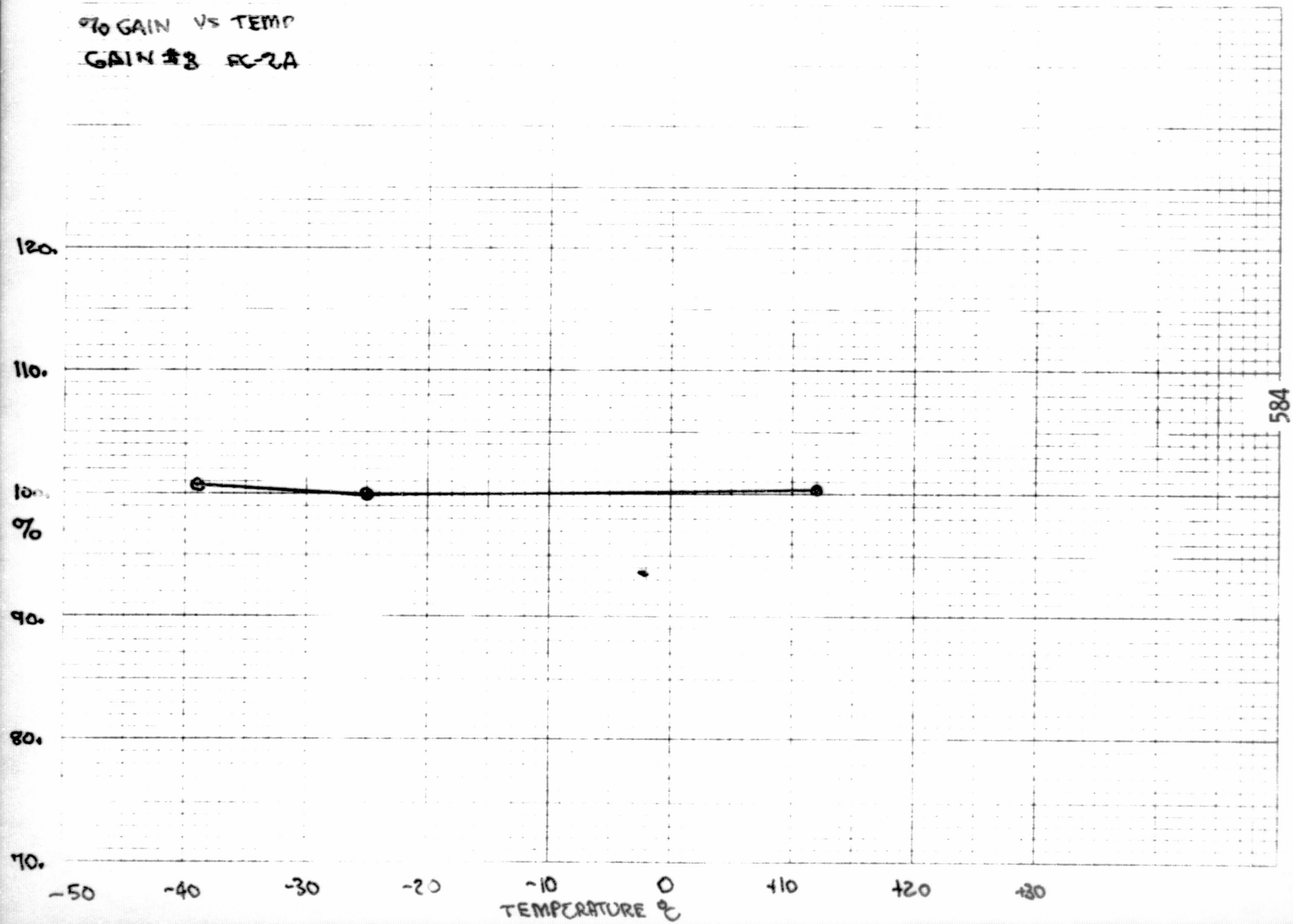
NO. 340A-10 DIETZGEN GRAPH PAPER
EUGENE DIETZGEN CO



582

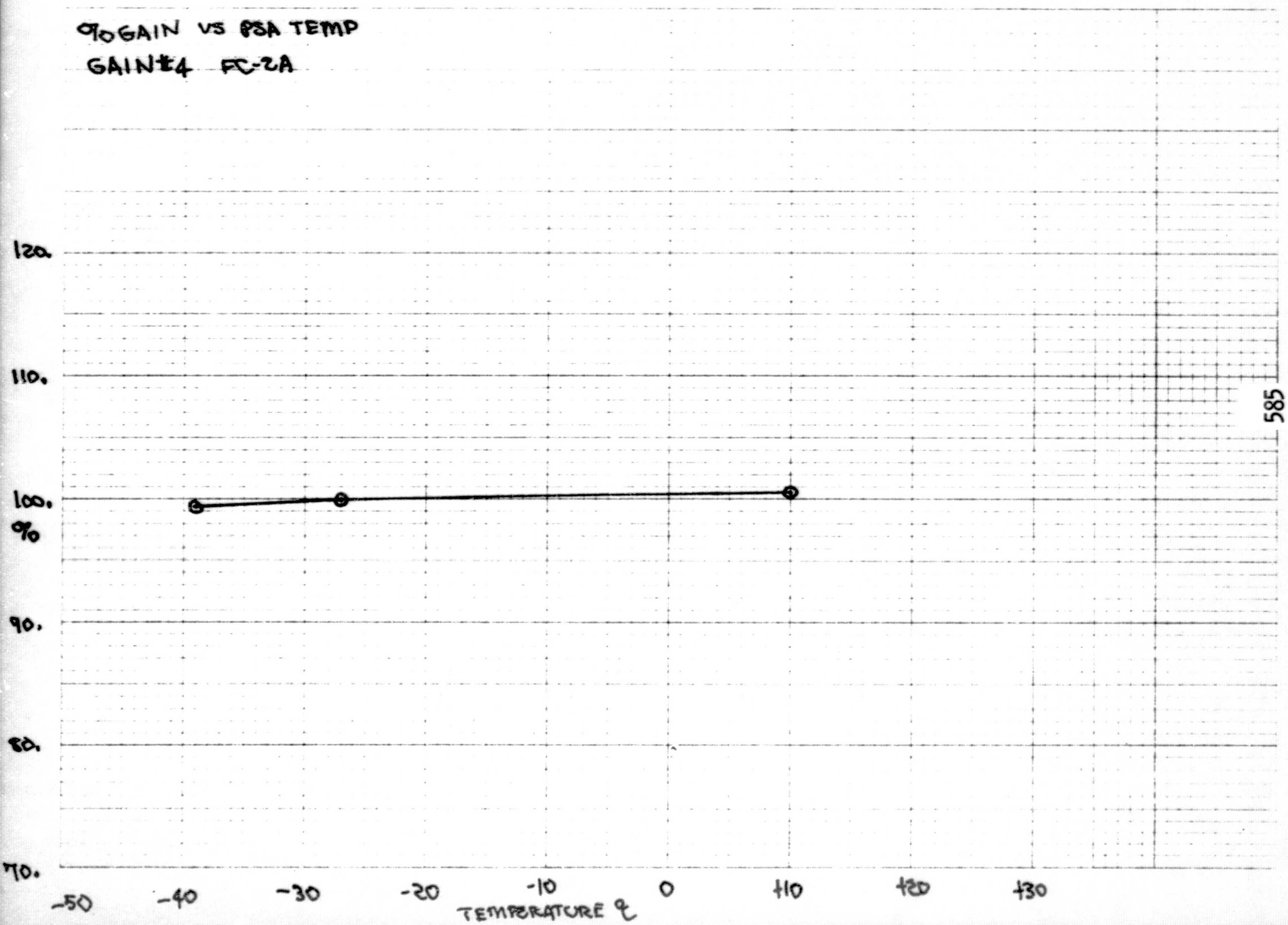
NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.





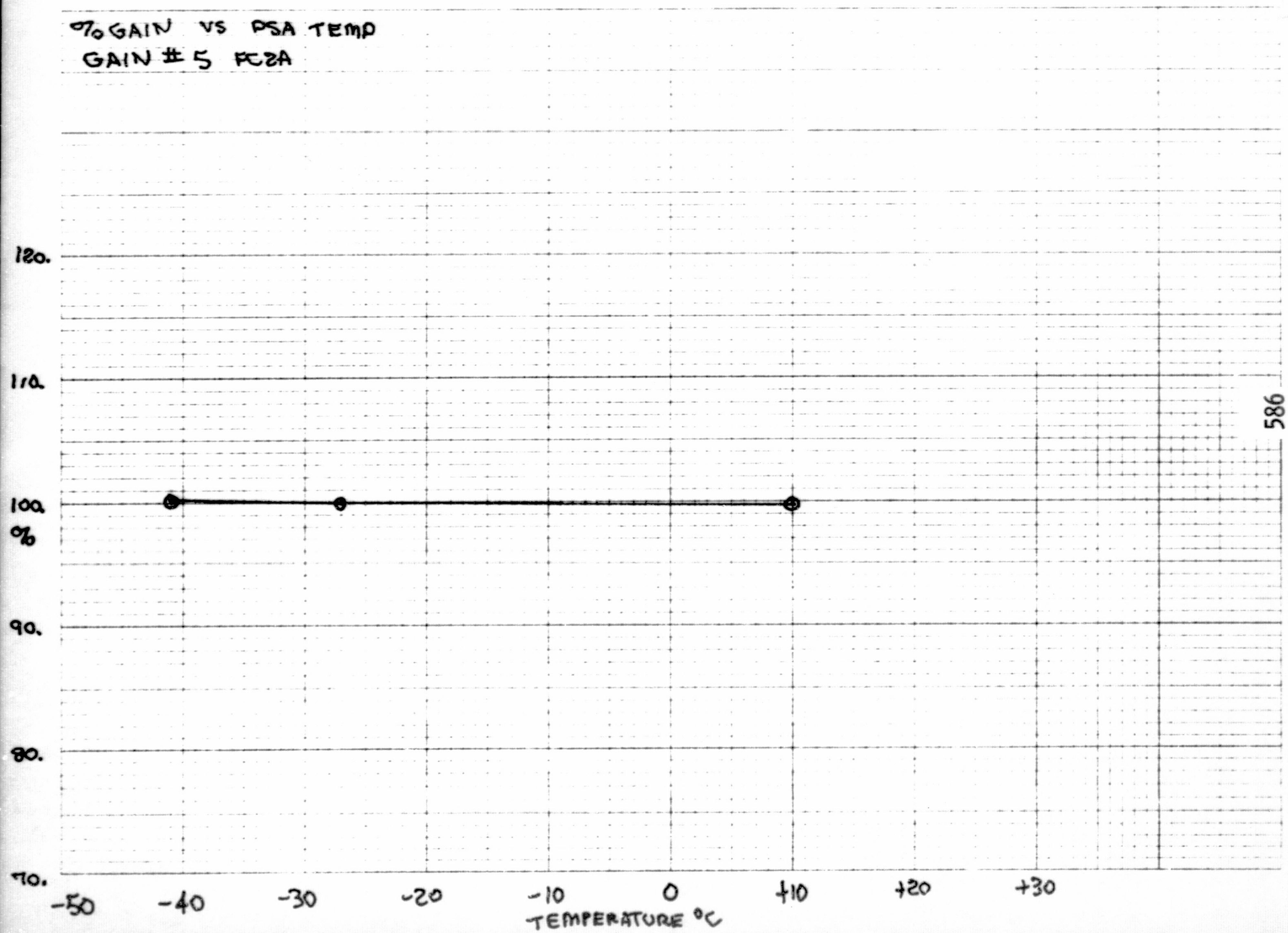
% GAIN VS TEMP
GAIN #8 FC-2A
120.
110.
100.
%
90.
80.
70.
-50
-40
-30
-20
-10
0
+10
+20
+30
TEMPERATURE °C

584



%GAIN VS PSA TEMP
GAIN #4 FC-2A
120.
110.
100.
%
90.
80.
70.
-50
-40
-30
-20
-10
0
+10
+20
+30
TEMPERATURE °C

585


%GAIN VS PSA TEMP
GAIN #5 FC2A
120.
110.
100.
%
90.
80.
70.
-50
-40
-30
-20
-10
0
+10
+20
+30
TEMPERATURE °C

586

FC-2A THERMAL CAL TEST

Gain Percent as a function of Temperature

Gain at "Middle" Temperature = 100%

Gain Setting	%/Temp	%/Temp	%/Temp
0	92.82746/+14°C	100.0/-23°C	77.18316/-39°C
1	100.00473/+14°C	100.0/-23°C	98.29802/-39°C
2	100.73538/+12°C	100.0/-25°C	100.70331/-39°C
3	100.29213/+12°C	100.0/-25°C	100.80018/-39°C
4	100.528/+10°C	100.0/-27°C	99.4011/-39°C
5	99.99518/+10°C	100.0/-27°C	100.03944/-41°C

NOT corrected gains.

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 9/18/74

CALIBRATION RUN FC-2A, CAL-BOT OFFSET TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

1. Table of Offsets in Millivolts
2. Graph of Millivolts vs. Offset Number
3. The Mean Millivolts/Offset Step

TEST DESCRIPTION D.C. voltage was input to the test connector. The camera was operated at a gain of 3. A PDF was taken at each offset, adjusting the D.C. voltage every 5 frames to avoid saturation (repeating the last offset when this was done).

DATA PROCESSING DESCRIPTION Mean DN was listed for each of the 37 PDF (SL = 80, SS = 200, NL = 30, NS = 30). These DN's were divided by the camera gain (55.49~~237~~ 508) to generate an "offset ladder" for each analog input. (End points were set equal to give a continuous relationship for graphing.) A least squares fit was used to arrive at the slope or mean millivolts/offset step.

ANALYST Michael Edward Morrill

APPROVAL Michael R. Wolf

GAIN VALUE= 55.492508 CONSTANT VALUE= 0.800000

OFFSET NUMBER	DN VALUES	OFFSET IN VOLTS
0	56.000	0.209146
1	48.000	0.064982
2	40.000	-0.079182
3	32.000	-0.223345
4	24.001	-0.367491
5	16.000	-0.511673
5	55.000	-0.511672
6	47.000	-0.655836
7	39.000	-0.799999
8	31.000	-0.944163
9	23.000	-1.088326
10	15.000	-1.232490
10	54.000	-1.232490
11	46.000	-1.376654
12	38.000	-1.520817
13	30.000	-1.664981
14	22.000	-1.809144
15	14.000	-1.953308
15	52.999	-1.953308
16	45.000	-2.097453
17	36.998	-2.241652
18	28.531	-2.394232
19	20.999	-2.529962
20	12.586	-2.681568
20	51.000	-2.681568
21	43.059	-2.824669
22	35.001	-2.969877
23	27.044	-3.113266
24	19.112	-3.256205
25	11.012	-3.402170
25	56.000	-3.402170
26	48.000	-3.546333
27	40.000	-3.690497
28	31.888	-3.836679
29	23.924	-3.980194
30	15.049	-4.140125
31	7.000	-4.285172

CORRECT!
23 May 75

589

589

APPENDIX II

WRONG GAIN

FC-2A GAIN #3 = 55.49237 @ ROOM TEMP

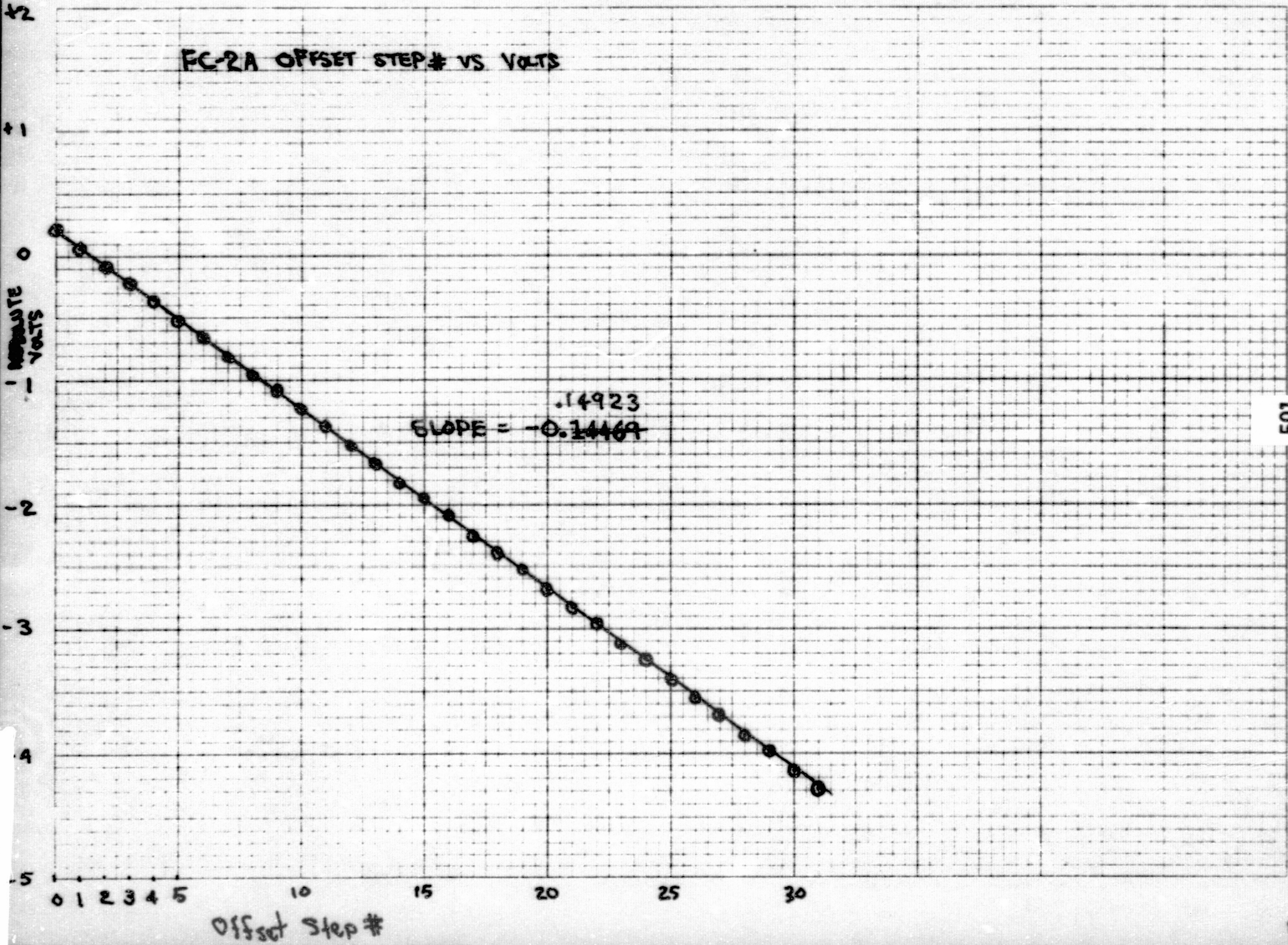
SLOPE = -0.14469 MEAN MILLIVOLTS/OFFSET STEP

OFFSET NUMBER	DN VALUES	OFFSET IN VOLTS
0	56.000	0.20915
1	48.000	0.06498
2	40.000	-0.07918
3	32.000	-0.22334
4	24.001	-0.36749
5	16.000	-0.51167
5	55.000	-0.51167
6	47.000	-0.65584
7	39.000	-0.80000
8	31.000	-0.94416
9	23.000	-1.08833
10	15.000	-1.23249
10	54.000	-1.23249
11	46.000	-1.37665
12	38.000	-1.52082
13	30.000	-1.66498
14	22.000	-1.80915
15	14.000	-1.95331
15	52.999	-1.95331
16	45.000	-2.09746
17	36.998	-2.24166
18	28.531	-2.39424
19	20.999	-2.52997
20	12.586	-2.66157
20	51.000	-2.68157
21	43.059	-2.82467
22	35.001	-2.96988
23	27.044	-3.11327
24	19.112	-3.25621
25	11.012	-3.40217
25	56.000	-3.40217
26	48.000	-3.54634
27	40.000	-3.69050
28	31.888	-3.83668
29	23.924	-3.98020
30	15.049	-4.14013
31	7.000	-4.28518

590

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.



591

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 10/15/74

CALIBRATION RUN COHERENT NOISE TEST, FC-2A CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of coherent noise frequencies and one-dimensional Fourier transforms of thirty 'noise' test frames taken during T.V. subsystem bench testing at Itek.

Analysis data from the FC-2A thermal chamber coherent noise test is also included.

A Results Summary is attached.

The dark current subtractor was on for all odd numbered frames.

The dark current subtractor was off for all even numbered frames.

TEST DESCRIPTION Two dark current frames were taken with each of the Broadband and Color diodes. The dark current subtractor was on and off for each diode with the offset changed as necessary. Low data rate frames were taken through the BB1 and SURVEY diodes only.

DATA PROCESSING DESCRIPTION Starting with Line 65, one-dimensional Fourier transforms were computed for the remaining lines in each frame.

ANALYST David L. Atwood

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

From the attached one-dimensional Fourier transforms of the noise test frames, it is obvious that coherent noise is also a real problem in the FC-2A Camera. Frames taken through the green diode in both mono and visual color modes seem to have the most significant noise problems although, for the most part, the coherent noise frequencies appeared to be independent of the selected diode at the high data rate, with the exception of the Survey diode which is relatively quiet.

There are some unique noise patterns in the low data rate frames that do not appear in any of the other coherent noise test frames, which may be an indication of a problem area.

The coherent noise frames from the thermal chamber testing which were taken through the BB2 diode appear to have a lesser noise problem. A strong noise peak appears at 0.2500 and does not seem to be affected by the 55°C change in temperature from +16°C to -39°C.

FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
1	BB1	1	.0195	62.40	1.523	+31°C
1	BB1	2	.0566	181.12	1.137	+31°C
1	BB1	3	.0937	299.84	1.630	+31°C
1	BB1	4	.1679	537.28	0.620	+31°C
1	BB1	5	.2070	662.40	0.449	+31°C
1	BB1	6	.2441	781.12	0.373	+31°C
1	BB1	7	.2500	800.00	0.613	+31°C
1	BB1	8	.3750	1200.00	0.837	+31°C
2	BB1	1	.0195	62.40	1.562	+31°C
2	BB1	2	.0566	181.12	1.181	+31°C
2	BB1	3	.0937	299.84	1.704	+31°C
2	BB1	4	.1679	537.28	0.631	+31°C
2	BB1	5	.2070	662.40	0.431	+31°C
2	BB1	6	.2441	781.12	0.360	+31°C
2	BB1	7	.2500	800.00	0.616	+31°C
2	BB1	8	.3750	1200.00	0.835	+31°C
3	BB2	1	.0195	62.40	1.621	+31°C
3	BB2	2	.0566	181.12	1.253	+31°C
3	BB2	3	.0937	299.84	1.811	+31°C
3	BB2	4	.1679	537.28	0.703	+31°C
3	BB2	5	.2070	662.40	0.465	+31°C
3	BB2	6	.2441	781.12	0.403	+31°C
3	BB2	7	.2500	800.00	0.828	+31°C
3	BB2	8	.3750	1200.00	0.911	+31°C
4	BB2	1	.0195	62.40	1.624	+31°C
4	BB2	2	.0566	181.12	1.266	+31°C
4	BB2	3	.0937	299.84	1.789	+31°C
4	BB2	4	.1679	537.28	0.676	+31°C
4	BB2	5	.2070	662.40	0.482	+31°C
4	BB2	6	.2441	781.12	0.410	+31°C
4	BB2	7	.2500	800.00	0.787	+31°C
4	BB2	8	.3750	1200.00	0.897	+31°C

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FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
5	BB3	1	.0195	62.40	1.928	+33°C
5	BB3	2	.0566	181.12	1.469	+33°C
5	BB3	3	.0937	299.84	2.103	+33°C
5	BB3	4	.1660	532.20	0.828	+33°C
5	BB3	5	.2070	662.40	0.524	+33°C
5	BB3	6	.2441	781.12	0.423	+33°C
5	BB3	7	.2500	800.00	0.734	+33°C
5	BB3	8	.3750	1200.00	0.945	+33°C
6	BB3	1	.0195	62.40	1.924	+33°C
6	BB3	2	.0566	181.12	1.492	+33°C
6	BB3	3	.0937	299.84	2.120	+33°C
6	BB3	4	.1679	537.28	0.795	+33°C
6	BB3	5	.2070	662.40	0.500	+33°C
6	BB3	6	.2441	781.12	0.425	+33°C
6	BB3	7	.2500	800.00	0.747	+33°C
6	BB3	8	.3750	1200.00	0.954	+33°C
7	BB4	1	.0195	62.40	1.758	+33°C
7	BB4	2	.0566	181.12	1.452	+33°C
7	BB4	3	.0937	299.84	2.027	+33°C
7	BB4	4	.1679	537.28	0.671	+33°C
7	BB4	5	.2070	662.40	0.478	+33°C
7	BB4	6	.2441	781.12	0.439	+33°C
7	BB4	7	.2500	800.00	0.688	+33°C
7	BB4	8	.3750	1200.00	0.930	+33°C
8	BB4	1	.0195	62.40	1.815	+33°C
8	BB4	2	.0566	181.12	1.422	+33°C
8	BB4	3	.0937	299.84	2.080	+33°C
8	BB4	4	.1679	537.28	0.786	+33°C
8	BB4	5	.2070	662.40	0.493	+33°C
8	BB4	6	.2441	781.12	0.400	+33°C
8	BB4	7	.2500	800.00	0.653	+33°C
8	BB4	8	.3750	1200.00	0.972	+33°C
9	SURVEY	1	.0195	62.40	0.602	+33°C
9	SURVEY	2	.0937	299.84	0.340	+33°C

FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
10	SURVEY	1	.0195	62.40	0.231	+33°C
10	SURVEY	2	.0937	299.84	0.238	+33°C
11	BLUE	1	.0195	62.40	2.023	+33°C
11	BLUE	2	.0566	181.12	1.565	+33°C
11	BLUE	3	.0937	299.84	2.235	+33°C
11	BLUE	4	.1679	537.28	0.760	+33°C
11	BLUE	5	.2070	662.40	0.625	+33°C
11	BLUE	6	.2441	781.12	0.517	+33°C
11	BLUE	7	.2500	800.00	1.047	+33°C
11	BLUE	8	.3750	1200.00	1.089	+33°C
12	BLUE	1	.0195	62.40	1.977	+33°C
12	BLUE	2	.0566	181.12	1.557	+33°C
12	BLUE	3	.0937	299.84	2.231	+33°C
12	BLUE	4	.1679	537.28	0.717	+33°C
12	BLUE	5	.2070	662.40	0.583	+33°C
12	BLUE	6	.2441	781.12	0.465	+33°C
12	BLUE	7	.2500	800.00	1.052	+33°C
12	BLUE	8	.3750	1200.00	1.127	+33°C
13	GREEN	1	.0195	62.40	2.384	+33°C
13	GREEN	2	.0566	181.12	1.838	+33°C
13	GREEN	3	.0937	299.84	2.594	+33°C
13	GREEN	4	.1679	537.28	0.932	+33°C
13	GREEN	5	.2070	662.40	0.698	+33°C
13	GREEN	6	.2441	781.12	0.557	+33°C
13	GREEN	7	.2500	800.00	1.050	+33°C
13	GREEN	8	.3750	1200.00	1.295	+33°C
14	GREEN	1	.0195	62.40	2.435	+33°C
14	GREEN	2	.0566	181.12	1.815	+33°C
14	GREEN	3	.0937	299.84	2.617	+33°C
14	GREEN	4	.1308	418.56	0.442	+33°C
14	GREEN	5	.1679	537.28	0.968	+33°C
14	GREEN	6	.2070	662.40	0.614	+33°C
14	GREEN	7	.2441	781.12	0.495	+33°C
14	GREEN	8	.2500	800.00	1.041	+33°C
14	GREEN	9	.3750	1200.00	1.280	+33°C
14	GREEN	10	.4316	1381.12	0.454	+33°C

FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
15	RED	1	.0195	62.40	1.029	+33°C
15	RED	2	.0566	181.12	0.723	+33°C
15	RED	3	.0937	299.84	1.093	+33°C
15	RED	4	.1660	531.12	0.529	+33°C
15	RED	5	.2070	662.40	0.270	+33°C
15	RED	6	.2500	800.00	0.383	+33°C
15	RED	7	.3750	1200.00	0.529	+33°C
16	RED	1	.0195	62.40	1.056	+33°C
16	RED	2	.0566	181.12	0.744	+33°C
16	RED	3	.0937	299.84	1.112	+33°C
16	RED	4	.1679	537.28	0.386	+33°C
16	RED	5	.2070	662.40	0.264	+33°C
16	RED	6	.2500	800.00	0.384	+33°C
16	RED	7	.3750	1200.00	0.546	+33°C
17	IR1	1	.0195	62.40	1.513	+33°C
17	IR1	2	.0566	181.12	1.113	+33°C
17	IR1	3	.0937	299.84	1.640	+33°C
17	IR1	4	.1660	532.20	0.700	+33°C
17	IR1	5	.2070	662.40	0.389	+33°C
17	IR1	6	.2500	800.00	0.671	+33°C
17	IR1	7	.3750	1200.00	0.790	+33°C
18	IR1	1	.0195	62.40	1.528	+33°C
18	IR1	2	.0566	181.12	1.103	+33°C
18	IR1	3	.0937	299.84	1.654	+33°C
18	IR1	4	.1679	537.28	0.564	+33°C
18	IR1	5	.2070	662.40	0.431	+33°C
18	IR1	6	.2500	800.00	0.663	+33°C
18	IR1	7	.3750	1200.00	0.783	+33°C
19	IR2	1	.0195	62.40	2.100	+33°C
19	IR2	2	.0566	181.12	1.590	+33°C
19	IR2	3	.0937	299.84	2.287	+33°C
19	IR2	4	.1679	537.28	0.791	+33°C
19	IR2	5	.2070	662.40	0.584	+33°C
19	IR2	6	.2441	781.12	0.445	+33°C
19	IR2	7	.2500	800.00	0.978	+33°C
19	IR2	8	.3750	1200.00	1.113	+33°C

FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK209D HIGH DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
20	IR2	1	.0195	62.40	2.060	+33°C
20	IR2	2	.0566	181.12	1.524	+33°C
20	IR2	3	.0937	299.84	2.245	+33°C
20	IR2	4	.1679	537.28	0.692	+33°C
20	IR2	5	.2070	662.40	0.522	+33°C
20	IR2	6	.2441	781.12	0.963	+33°C
20	IR2	7	.2500	800.00	0.433	+33°C
20	IR2	8	.3750	1200.00	1.078	+33°C
21	IR3	1	.0195	62.40	0.964	+35°C
21	IR3	2	.0566	181.12	0.721	+35°C
21	IR3	3	.0937	299.84	1.027	+35°C
21	IR3	4	.1660	532.20	0.475	+35°C
21	IR3	5	.2500	800.00	0.515	+35°C
21	IR3	6	.3750	1200.00	0.488	+35°C
22	IR3	1	.0195	62.40	0.988	+33°C
22	IR3	2	.0566	181.12	0.712	+33°C
22	IR3	3	.0937	299.84	1.062	+33°C
22	IR3	4	.1679	537.28	0.378	+33°C
22	IR3	5	.2500	800.00	0.568	+33°C
22	IR3	6	.3750	1200.00	0.497	+33°C

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FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D LOW DATA RATE

FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
23	SURVEY	1	.1992	637.44	0.407	+33°C
24	SURVEY	1	.2011	643.52	0.280	+33°C
25	BB1	1	.1992	637.44	0.737	+33°C
25	BB1	2	.4003	1280.96	0.258	+33°C
26	BB1	1	.1992	637.44	0.932	+33°C
26	BB1	2	.4003	1280.96	0.301	+33°C

FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL (VC)	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
27	GREEN	1	.0195	62.40	2.280	+35°C
27	GREEN	2	.0566	181.12	1.803	+35°C
27	GREEN	3	.0937	299.84	2.437	+35°C
27	GREEN	4	.1679	537.28	0.802	+35°C
27	GREEN	5	.2070	662.40	0.596	+35°C
27	GREEN	6	.2441	781.12	0.502	+35°C
27	GREEN	7	.2500	800.00	1.047	+35°C
27	GREEN	8	.3750	1200.00	1.265	+35°C
27	GREEN	9	.4316	1381.12	0.422	+35°C
27	RED	1	.0195	62.40	0.980	+35°C
27	RED	2	.0566	181.12	0.724	+35°C
27	RED	3	.0937	299.84	0.995	+35°C
27	RED	4	.1660	531.20	0.449	+35°C
27	RED	5	.2070	662.40	0.255	+35°C
27	RED	6	.2500	800.00	0.381	+35°C
27	RED	7	.3750	1200.00	0.548	+35°C
27	BLUE	1	.0195	62.40	1.952	+35°C
27	BLUE	2	.0566	181.12	1.594	+35°C
27	BLUE	3	.0937	299.84	2.143	+35°C
27	BLUE	4	.1679	537.28	0.800	+35°C
27	BLUE	5	.2070	662.40	0.334	+35°C
27	BLUE	6	.2441	781.12	0.521	+35°C
27	BLUE	7	.2500	800.00	1.040	+35°C
27	BLUE	8	.3750	1200.00	1.070	+35°C
28	GREEN	1	.0195	62.40	2.267	+35°C
28	GREEN	2	.0566	181.12	1.867	+35°C
28	GREEN	3	.0937	299.84	2.452	+35°C
28	GREEN	4	.1679	537.28	0.868	+35°C
28	GREEN	5	.2070	662.40	0.657	+35°C
28	GREEN	6	.2441	781.12	0.532	+35°C
28	GREEN	7	.2500	800.00	1.041	+35°C
28	GREEN	8	.3750	1200.00	1.272	+35°C
28	RED	1	.0195	62.40	0.973	+35°C
28	RED	2	.0566	181.12	0.729	+35°C
28	RED	3	.0937	299.84	1.017	+35°C
28	RED	4	.1679	537.28	0.349	+35°C
28	RED	5	.2070	662.40	0.265	+35°C
28	RED	6	.2500	800.00	0.363	+35°C
28	RED	7	.3750	1200.00	0.534	+35°C

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FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL (VC)	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
28	BLUE	1	.0195	62.40	1.929	+35°C
28	BLUE	2	.0566	181.12	1.532	+35°C
28	BLUE	3	.0937	299.84	2.130	+35°C
28	BLUE	4	.1660	531.20	0.870	+35°C
28	BLUE	5	.2070	662.40	0.601	+35°C
28	BLUE	6	.2441	781.12	0.450	+35°C
28	BLUE	7	.2500	800.00	1.027	+35°C
28	BLUE	8	.3750	1200.00	1.098	+35°C

FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

FRAME NO.	CHANNEL (IR COLOR)	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
29	IR1	1	.0195	62.40	1.414	+35°C
29	IR1	2	.0566	181.12	1.099	+35°C
29	IR1	3	.0937	299.84	1.530	+35°C
29	IR1	4	.1679	537.28	0.542	+35°C
29	IR1	5	.2070	662.40	0.397	+35°C
29	IR1	6	.2500	800.00	0.665	+35°C
29	IR1	7	.3750	1200.00	0.785	+35°C
29	IR2	1	.0195	62.40	1.958	+35°C
29	IR2	2	.0566	181.12	1.589	+35°C
29	IR2	3	.0937	299.84	2.096	+35°C
29	IR2	4	.1679	537.28	0.808	+35°C
29	IR2	5	.2070	662.40	0.577	+35°C
29	IR2	6	.2441	781.12	0.430	+35°C
29	IR2	7	.2500	800.00	0.950	+35°C
29	IR2	8	.3750	1200.00	1.113	+35°C
29	IR3	1	.0195	62.40	0.949	+35°C
29	IR3	2	.0566	181.12	0.719	+35°C
29	IR3	3	.0937	299.84	1.018	+35°C
29	IR3	4	.1660	531.12	0.475	+35°C
29	IR3	5	.2500	800.00	0.542	+35°C
29	IR3	6	.3750	1200.00	0.493	+35°C
30	IR1	1	.0195	62.40	1.445	+35°C
30	IR1	2	.0566	181.12	1.109	+35°C
30	IR1	3	.0937	299.84	1.547	+35°C
30	IR1	4	.1660	531.28	0.630	+35°C
30	IR1	5	.2070	662.40	0.407	+35°C
30	IR1	6	.2500	800.00	0.638	+35°C
30	IR1	7	.3750	1200.00	0.784	+35°C
30	IR2	1	.0195	62.40	1.980	+35°C
30	IR2	2	.0566	181.12	1.574	+35°C
30	IR2	3	.0937	299.84	2.146	+35°C
30	IR2	4	.1679	537.28	0.547	+35°C
30	IR2	5	.2070	662.40	0.561	+35°C
30	IR2	6	.2441	781.12	0.415	+35°C
30	IR2	7	.2500	800.00	0.924	+35°C
30	IR2	8	.3750	1200.00	1.076	+35°C

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FC-2A CAL. B.O.T.

COHERENT NOISE FREQUENCIES TABLE

TAPE: VIK203D HIGH DATA RATE

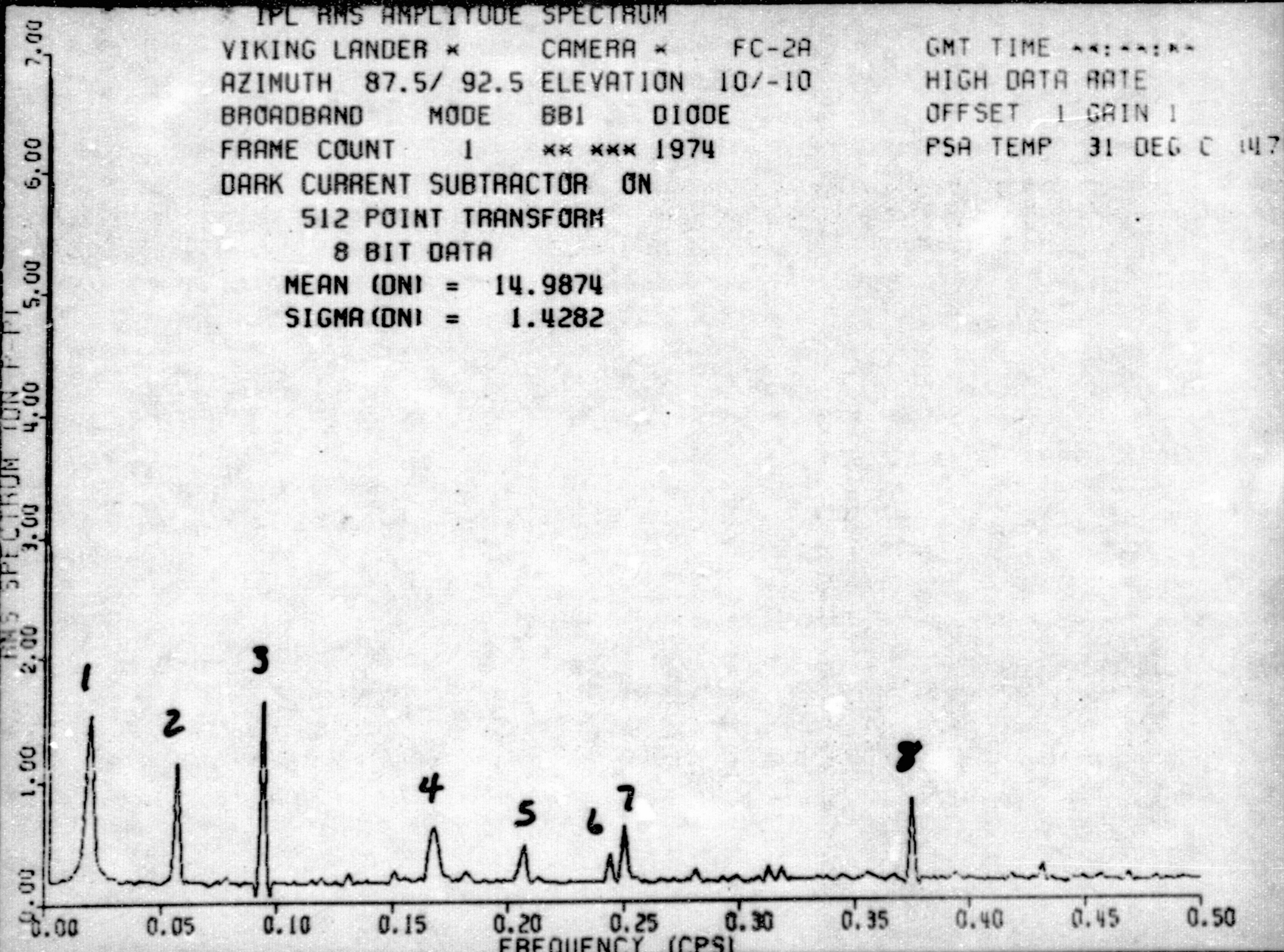
FRAME NO.	CHANNEL (IR COLOR)	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
30	IR3	1	.0195	62.40	0.943	+35°C
30	IR3	2	.0566	181.12	0.708	+35°C
30	IR3	3	.0937	299.84	1.037	+35°C
30	IR3	4	.1679	537.28	0.365	+35°C
30	IR3	5	.2500	800.00	0.557	+35°C
30	IR3	6	.3750	1200.00	0.492	+35°C

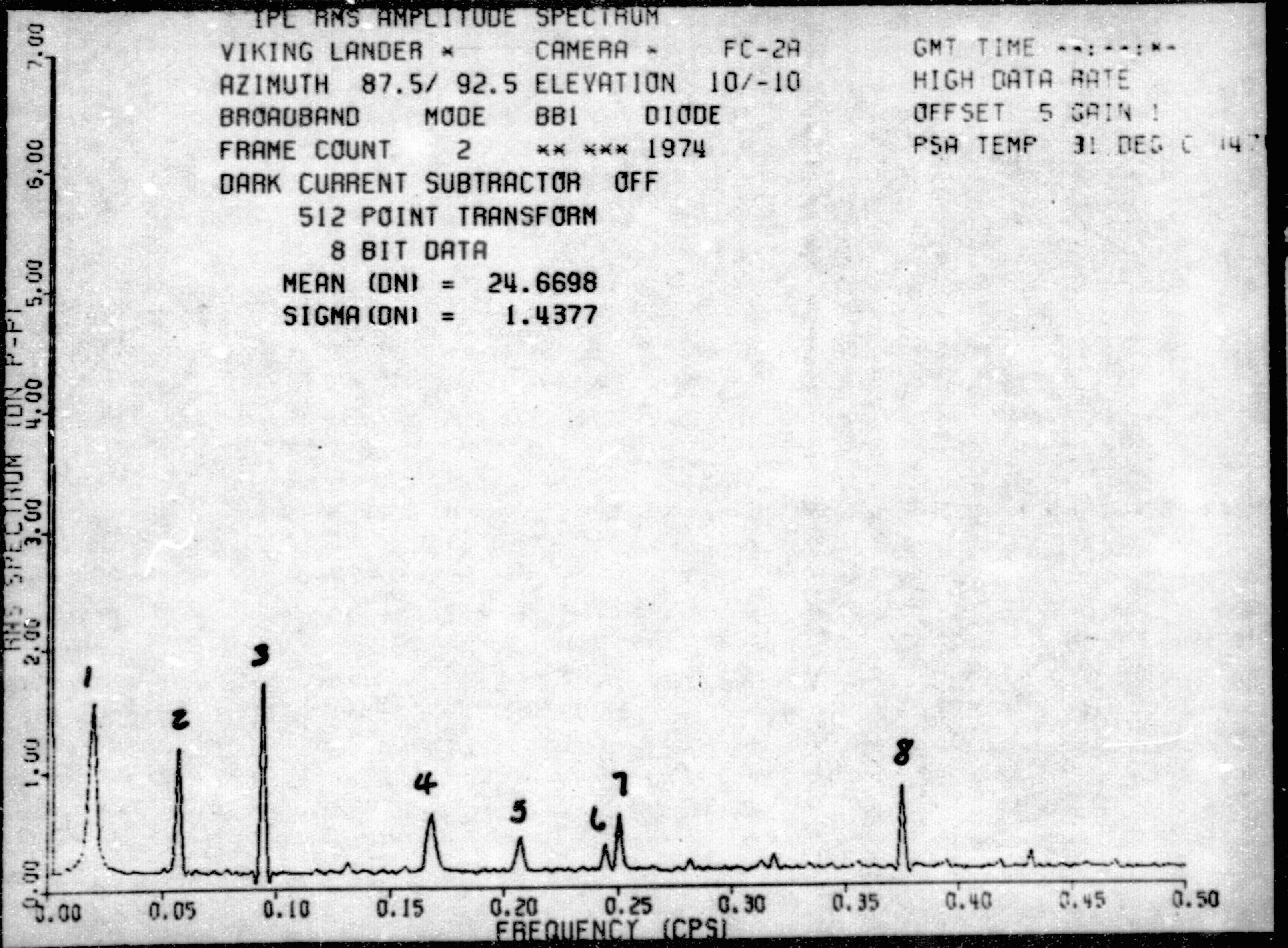
FC-2A THERMAL CAL.

COHERENT NOISE FREQUENCIES TABLE

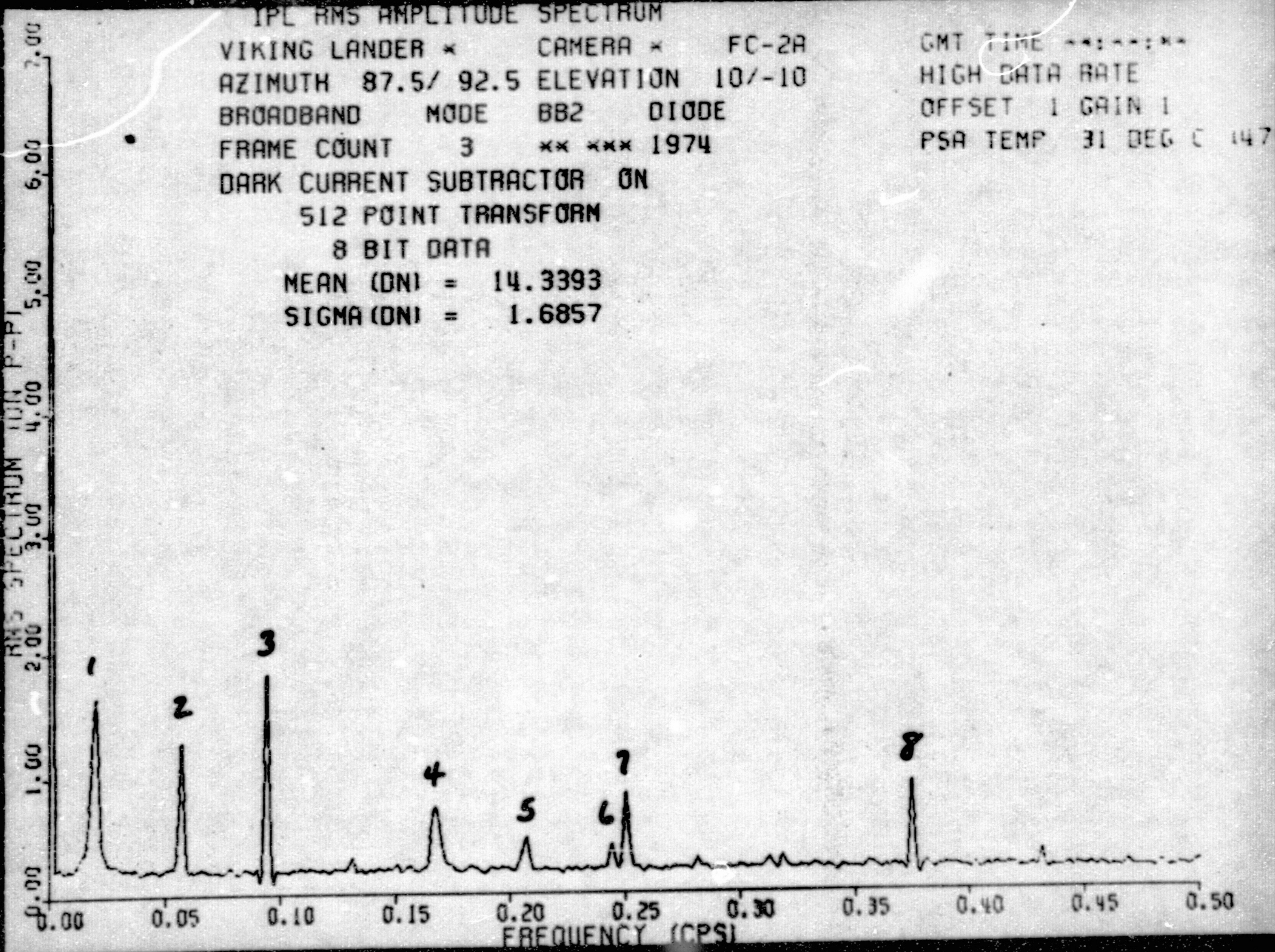
TAPE: VIK218D & VIK221D HIGH DATA RATE

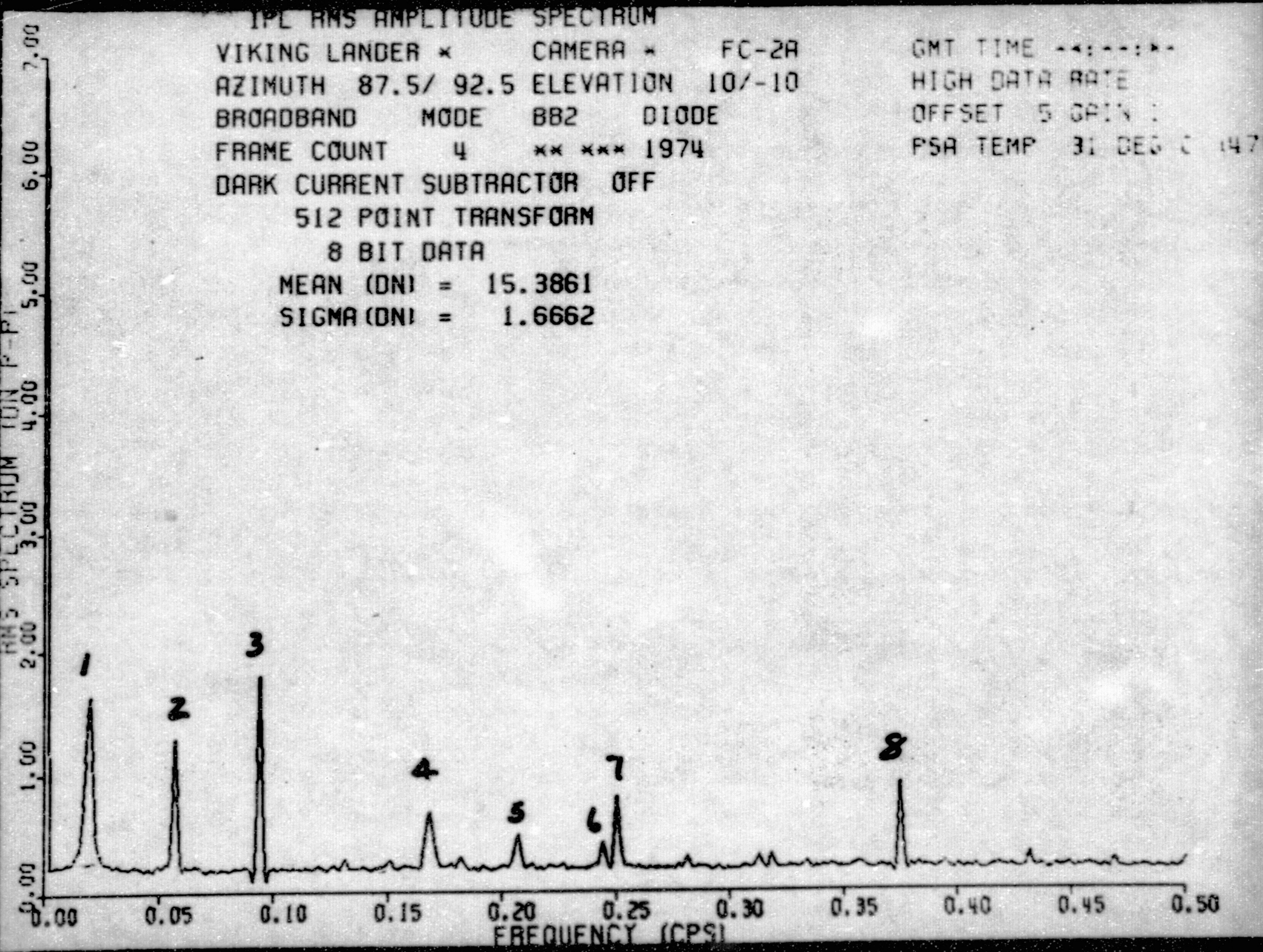
FRAME NO.	CHANNEL	PEAK NO.	FREQUENCY (CPS)	FREQUENCY (HZ)	AMPLITUDE (P-P DN)	PSA TEMP.
125	BB2	1	.0195	62.40	1.585	-39°C
125	BB2	2	.0566	181.12	0.543	-39°C
125	BB2	3	.0937	299.84	0.534	-39°C
125	BB2	4	.2519	806.08	1.412	-39°C
126	BB2	1	.0195	62.40	1.586	-39°C
126	BB2	2	.0566	181.12	0.517	-39°C
126	BB2	3	.0937	299.84	0.534	-39°C
126	BB2	4	.2519	806.08	1.464	-39°C
125	BB2	1	.0195	62.40	1.472	-23°C
125	BB2	2	.0566	181.12	0.488	-23°C
125	BB2	3	.0937	299.84	0.344	-23°C
125	BB2	4	.2500	800.00	1.641	-23°C
126	BB2	1	.0195	62.40	1.508	-23°C
126	BB2	2	.0566	181.12	0.358	-23°C
126	BB2	3	.0937	299.84	0.532	-23°C
126	BB2	4	.2500	800.00	1.703	-23°C
125	BB2	1	.0195	62.40	1.500	+16°C
125	BB2	2	.0566	181.12	0.481	+16°C
125	BB2	3	.0937	299.84	0.603	+16°C
125	BB2	4	.2500	800.00	1.664	+16°C
126	BB2	1	.0195	62.40	1.471	+16°C
126	BB2	2	.0566	181.12	0.546	+16°C
126	BB2	3	.0937	299.84	0.614	+16°C
126	BB2	4	.2500	800.00	1.673	+16°C


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 1 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.9874
SIGMA (DN) = 1.4282
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 31 DEG C
1
2
3
4
5
6
7
8
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

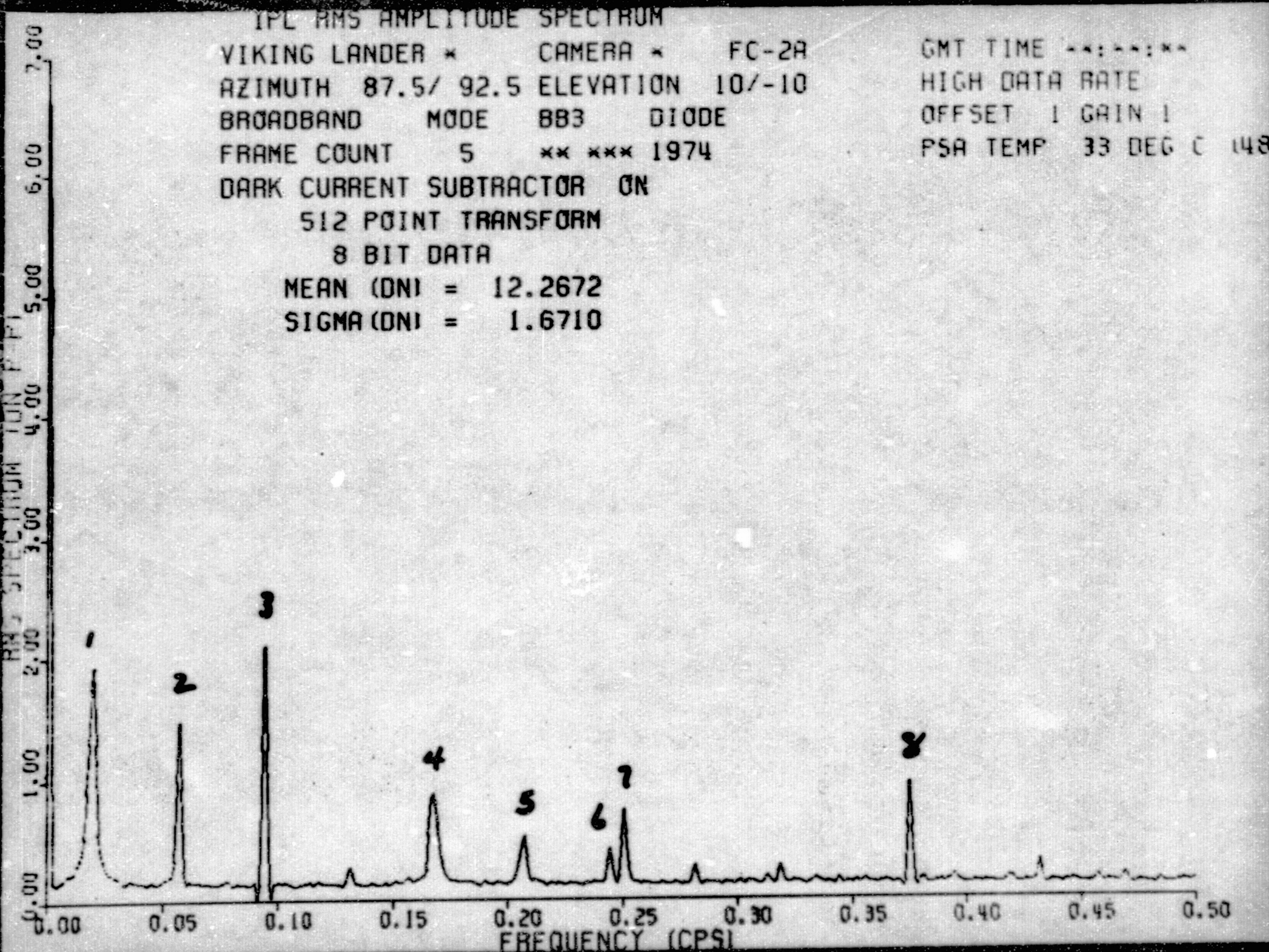


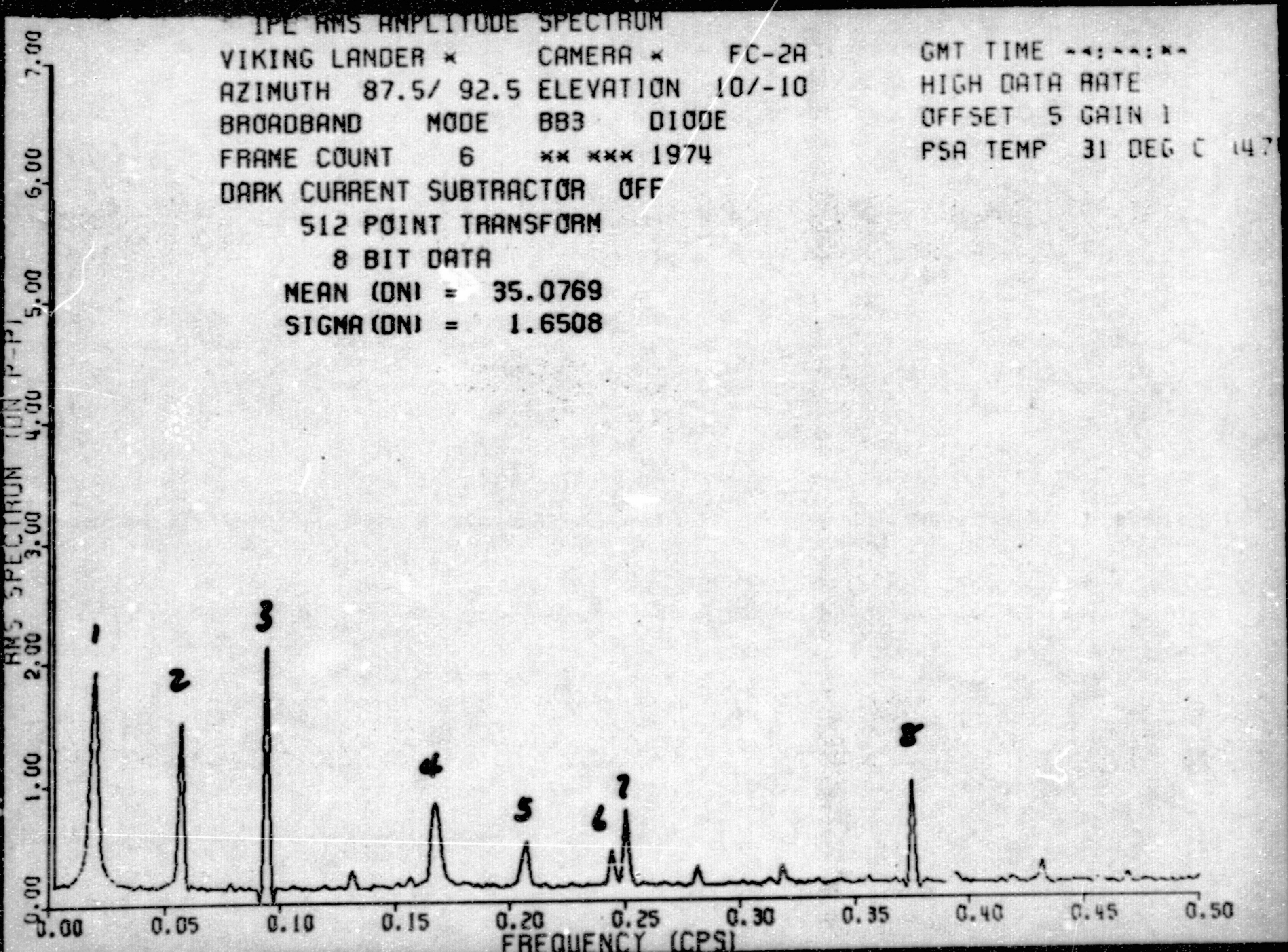
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 2 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 24.6698
SIGMA(DN) = 1.4377
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP
RMS SPECTRUM (DN P-P)
FREQUENCY (CPS)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
1
2
3
4
5
6
7
8

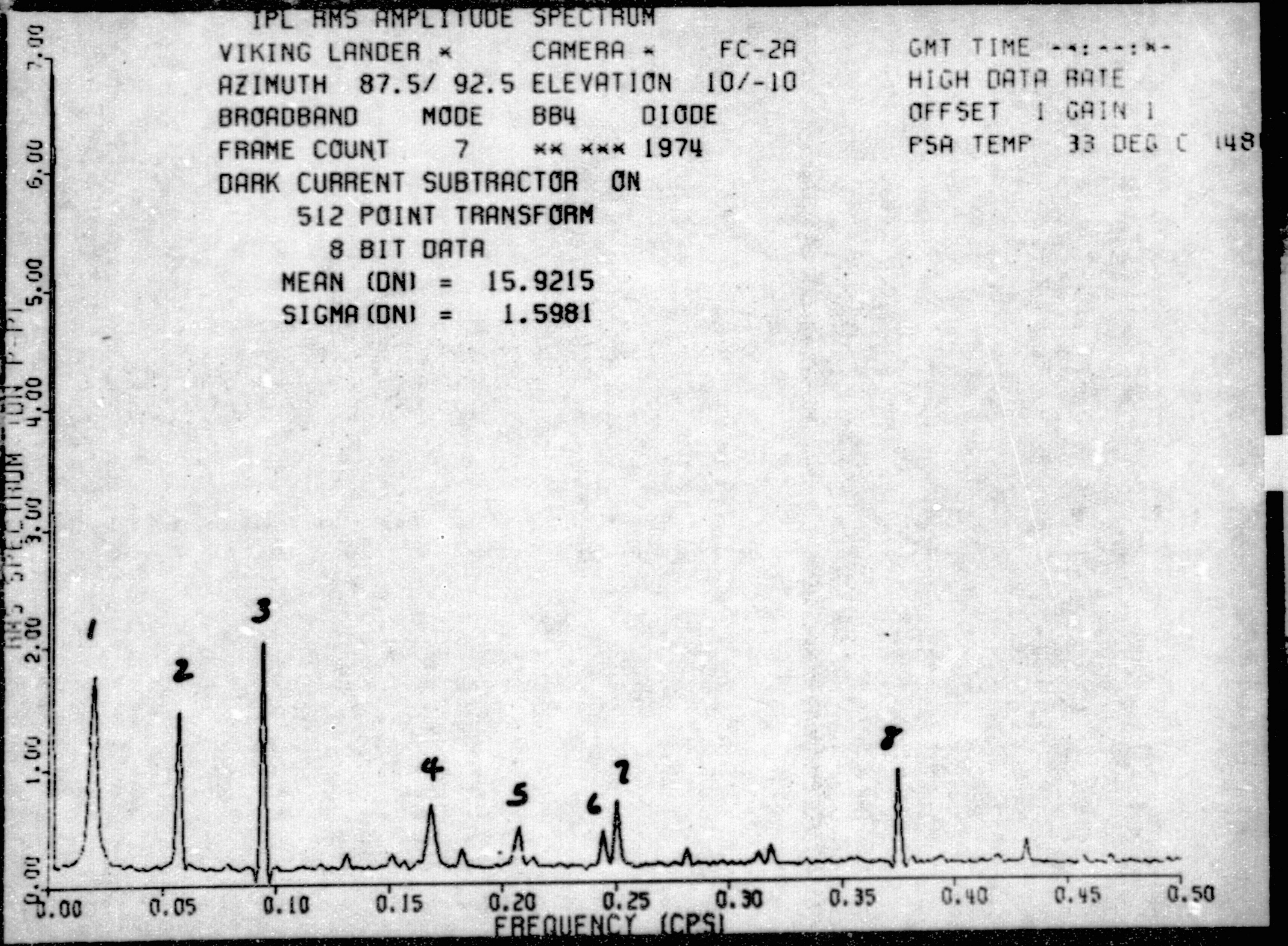

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 3 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.3393
SIGMA (DN) = 1.6857
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 31 DEG C
RMS SPECTRUM (DN P-P)
FREQUENCY (CPS)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
7
8



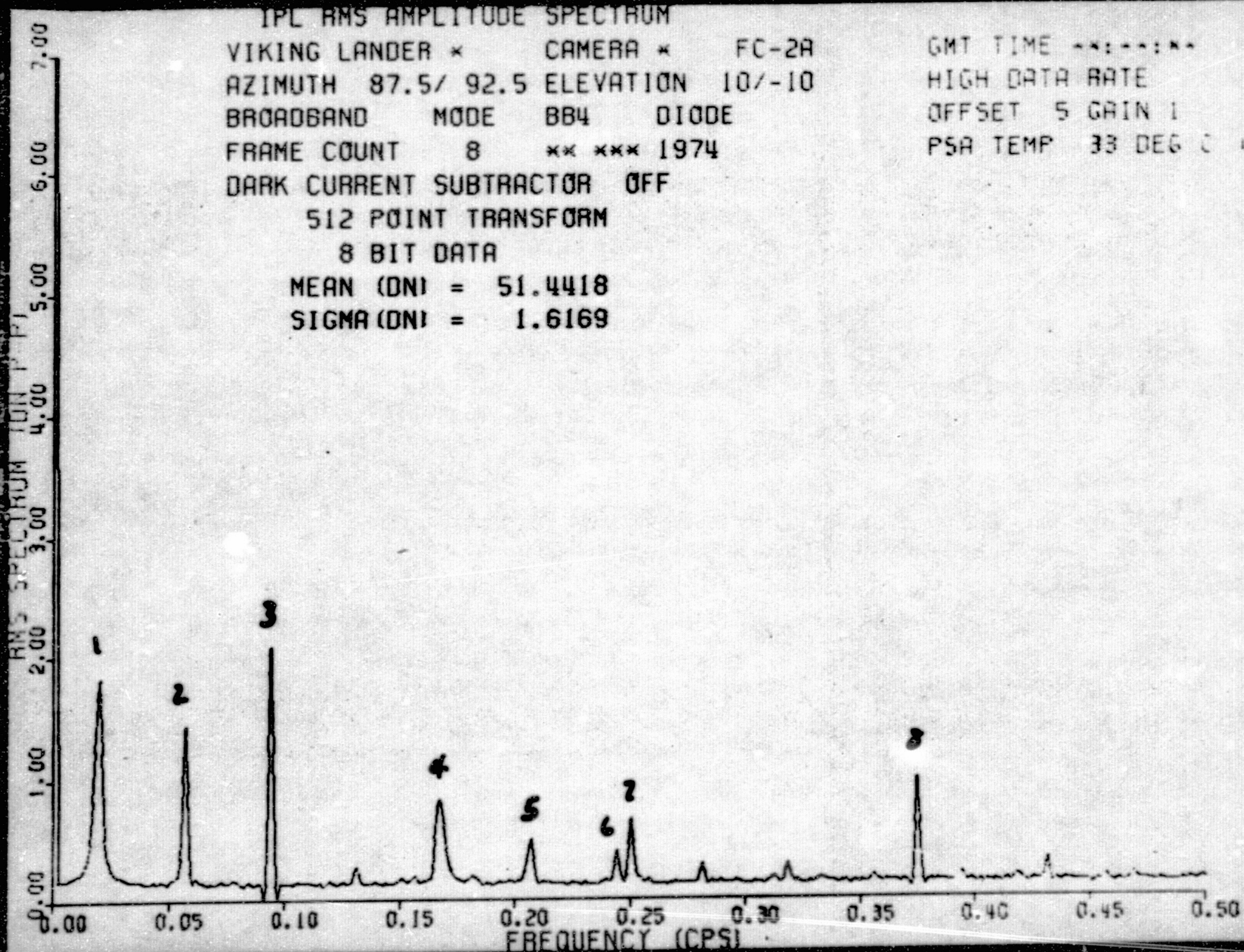
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 4 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.3861
SIGMA (DN) = 1.6662
GMT TIME
HIGH DATA RATE
OFFSET 5
PSA TEMP
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

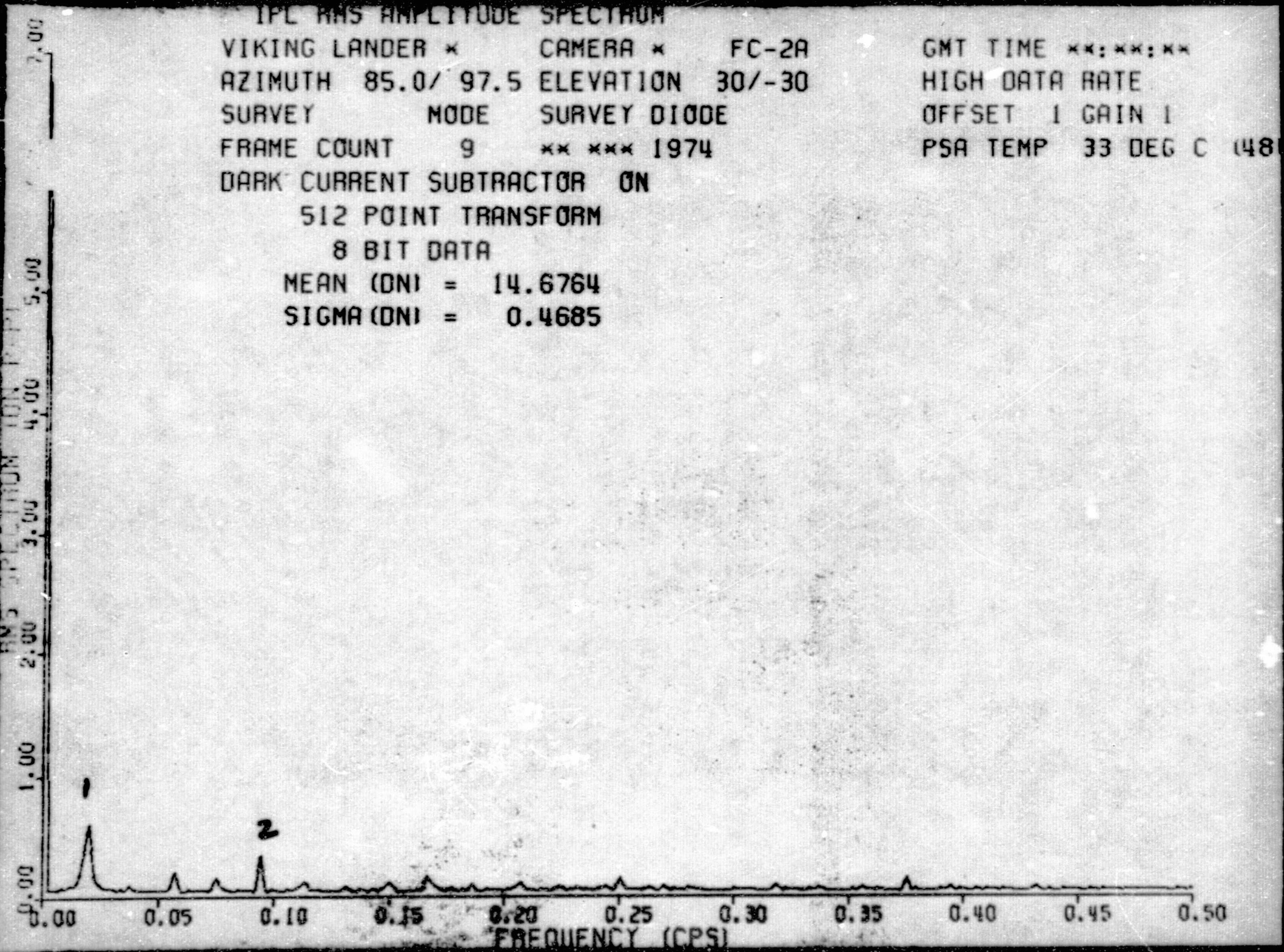

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB3 DIODE
FRAME COUNT 5 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 12.2672
SIGMA (DN) = 1.6710
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 33 DEG C
1
2
3
4
5
6
7
8
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB3 DIODE
FRAME COUNT 6 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 35.0769
SIGMA (DN) = 1.6508
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 31 DEG C
RMS SPECTRUM (DN P-P)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

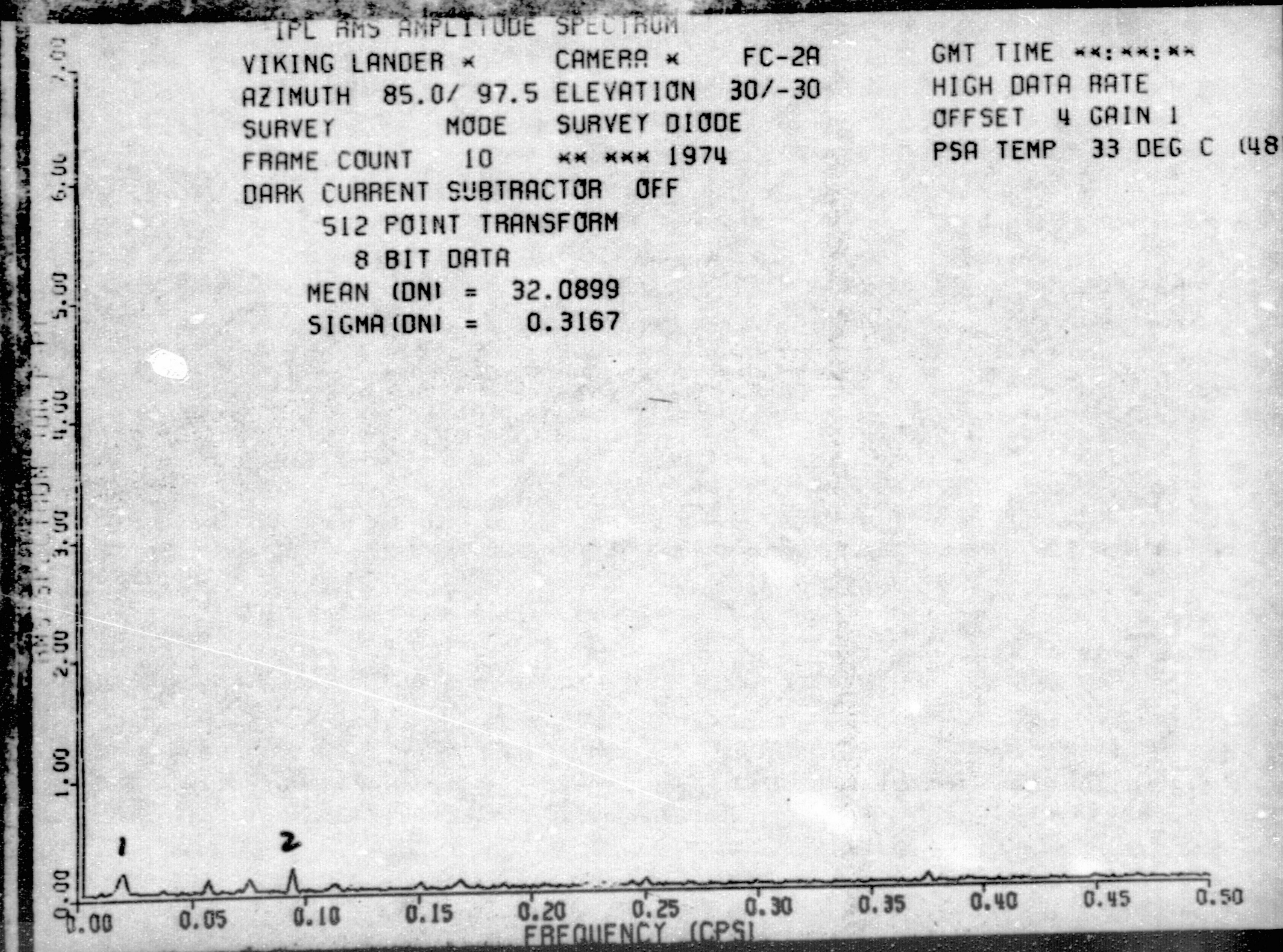


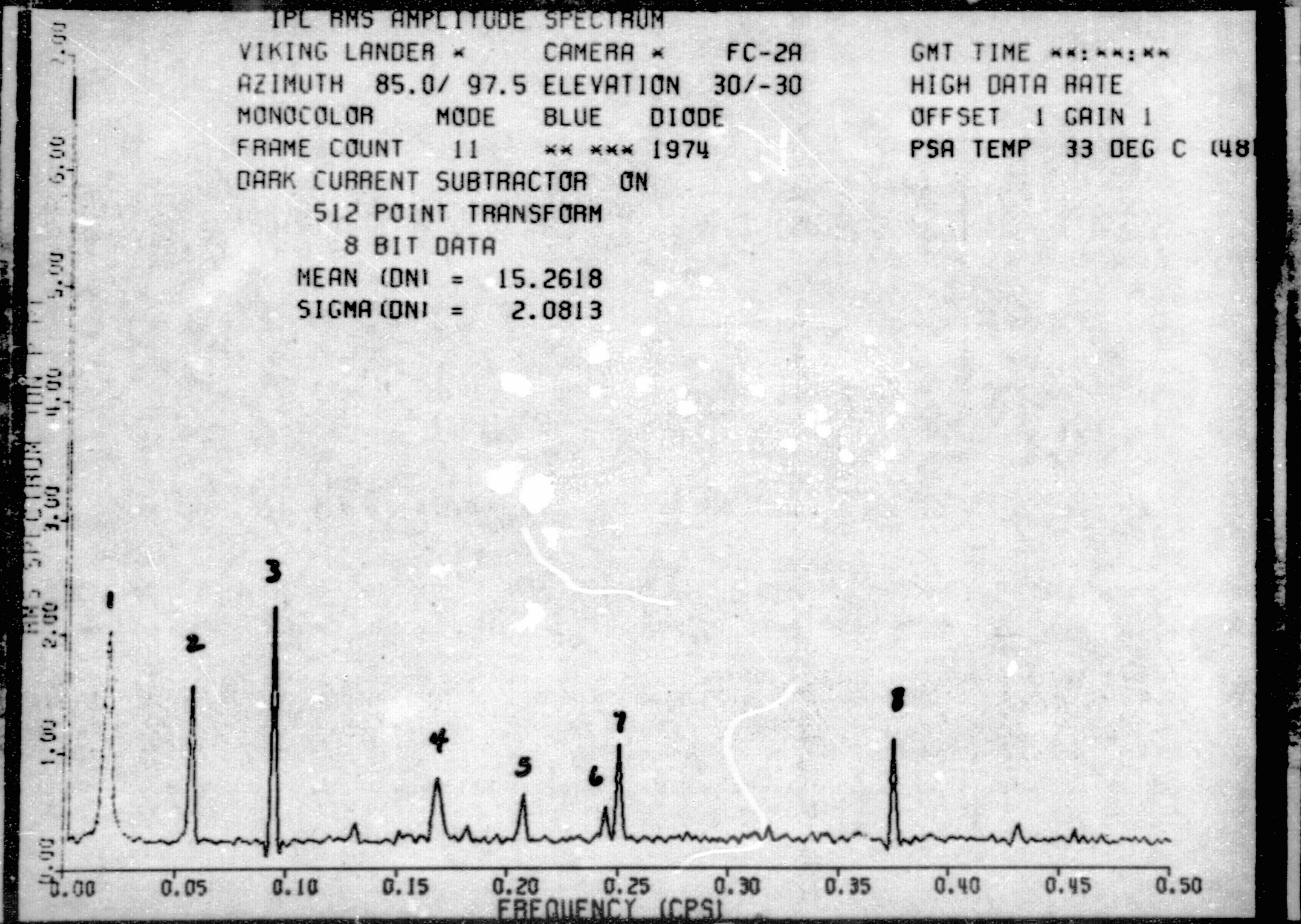
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB4 DIODE
FRAME COUNT 7 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.9215
SIGMA (DN) = 1.5981
GMT TIME --:--:--
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 33 DEG C 148
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
1
2
3
4
5
6
7
8

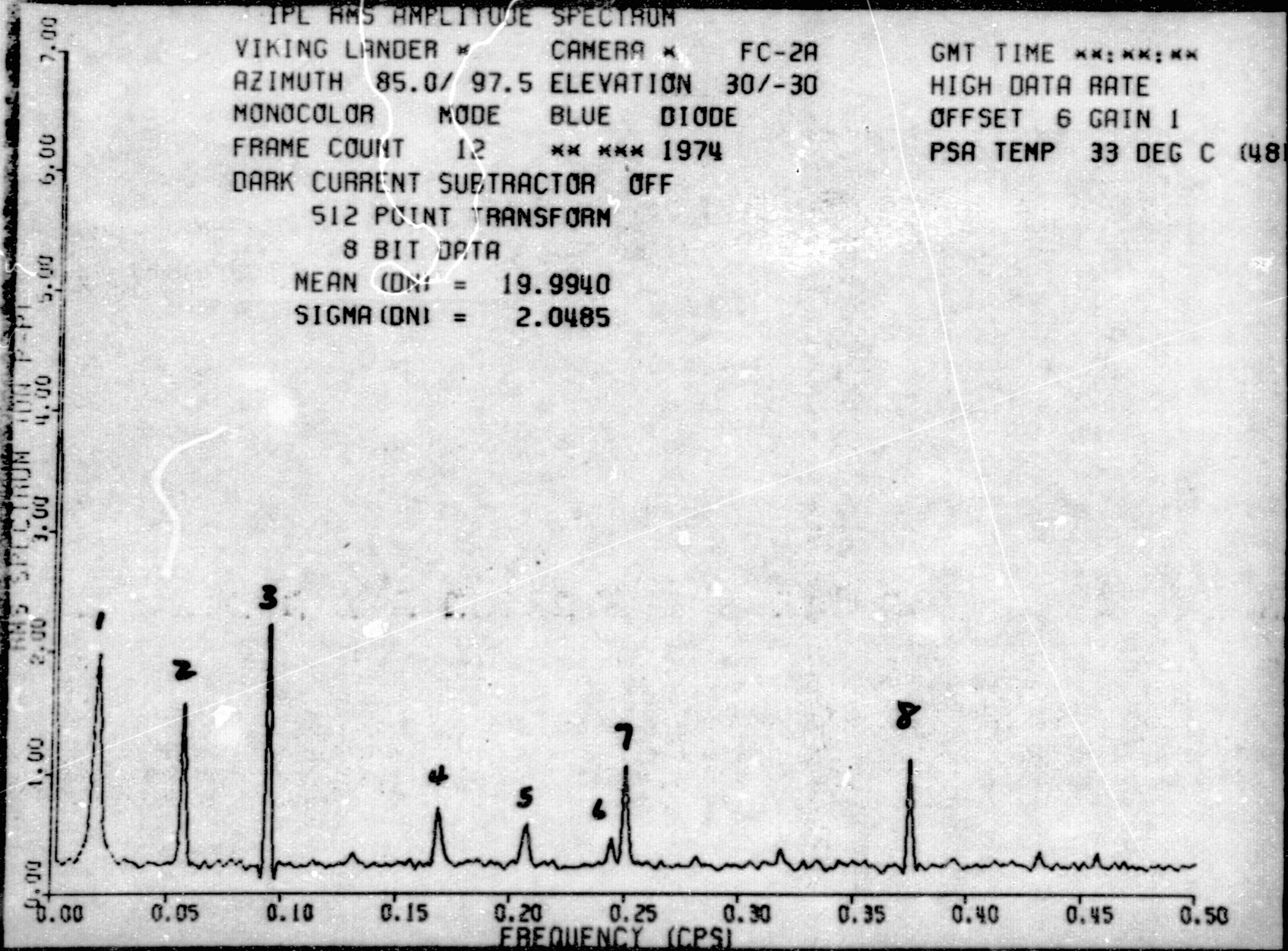

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   FC-2A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB4 DIODE
FRAME COUNT 8 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 51.4418
SIGMA(DN) = 1.6169
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 33 DEG C
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
FREQUENCY (CPS)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
1
2
3
4
5
6
7
8

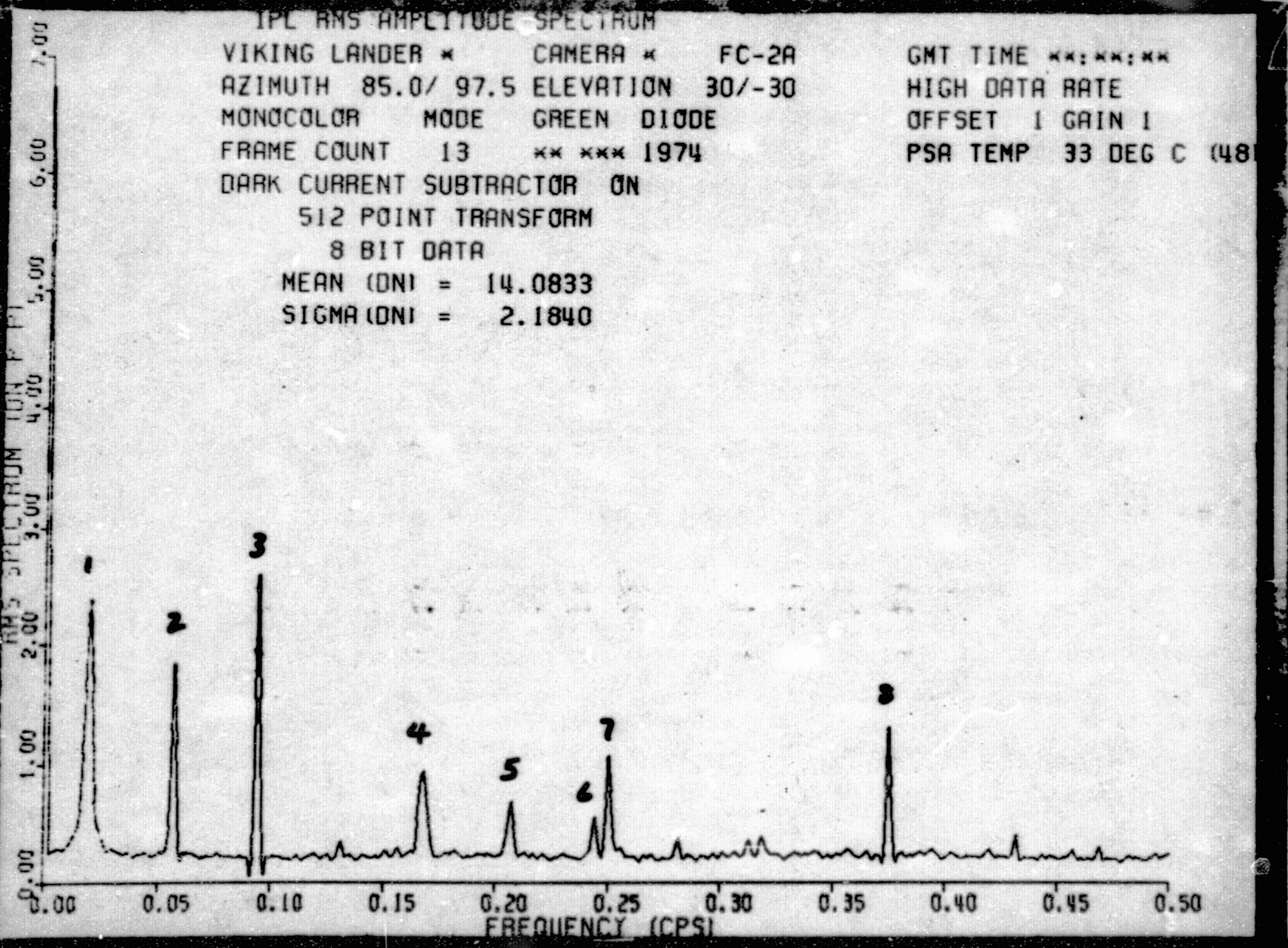


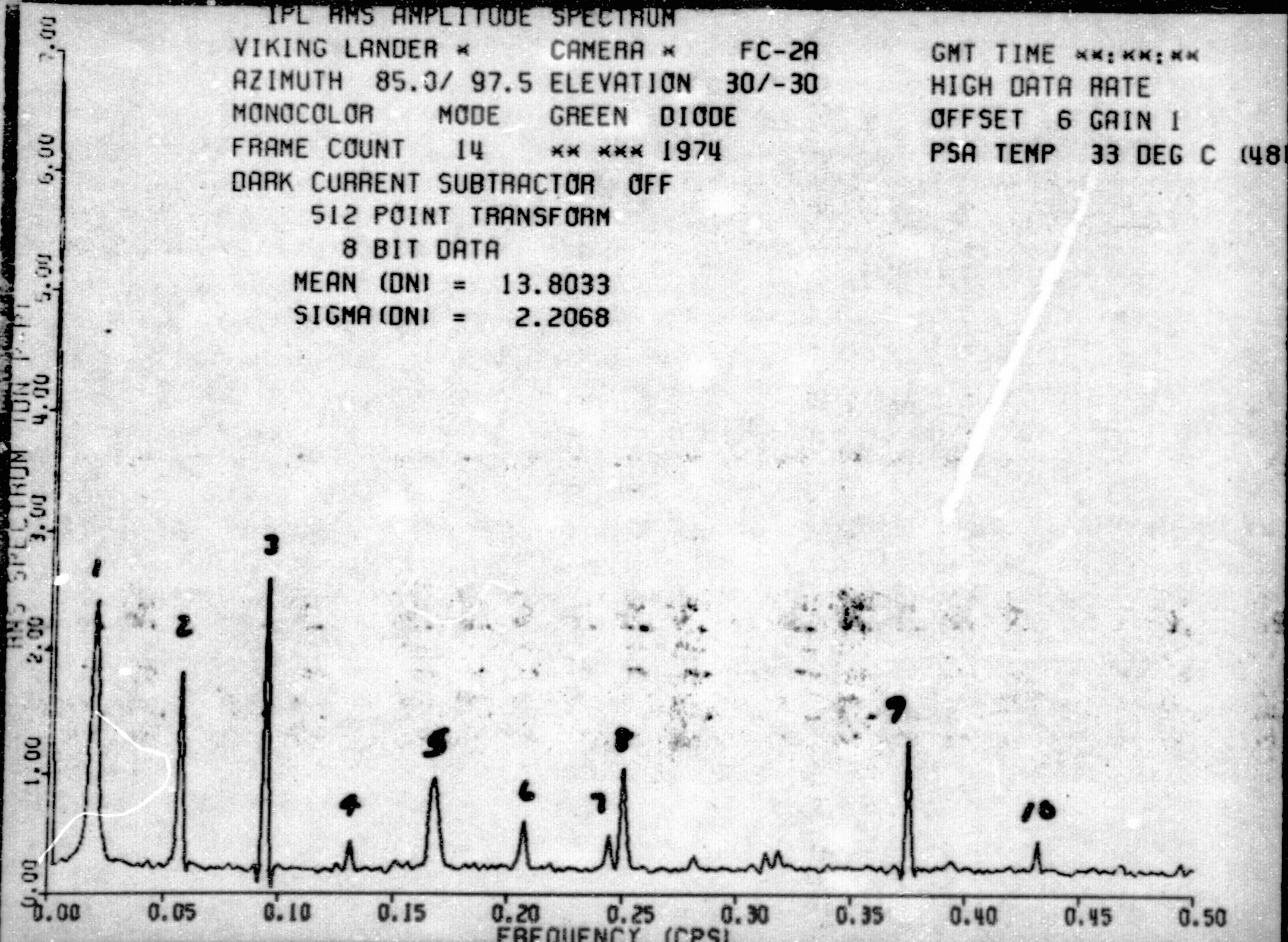
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 1 GAIN 1
FRAME COUNT 9 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.6764
SIGMA(DN) = 0.4685
1
2
0.00
1.00
2.00
3.00
4.00
5.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

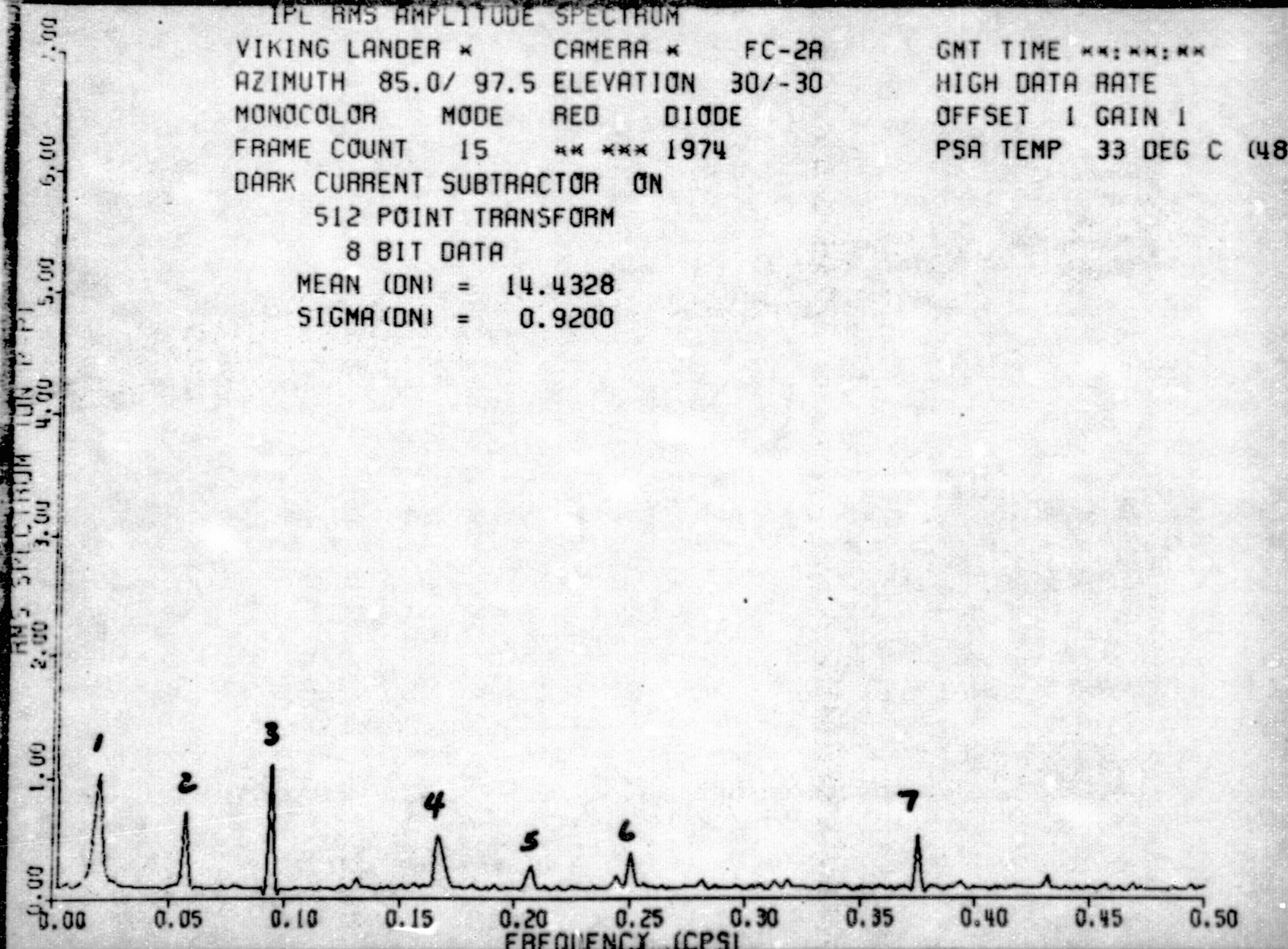

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 10 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 32.0899
SIGMA(DN) = 0.3167
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 33 DEG C (48
1
2
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

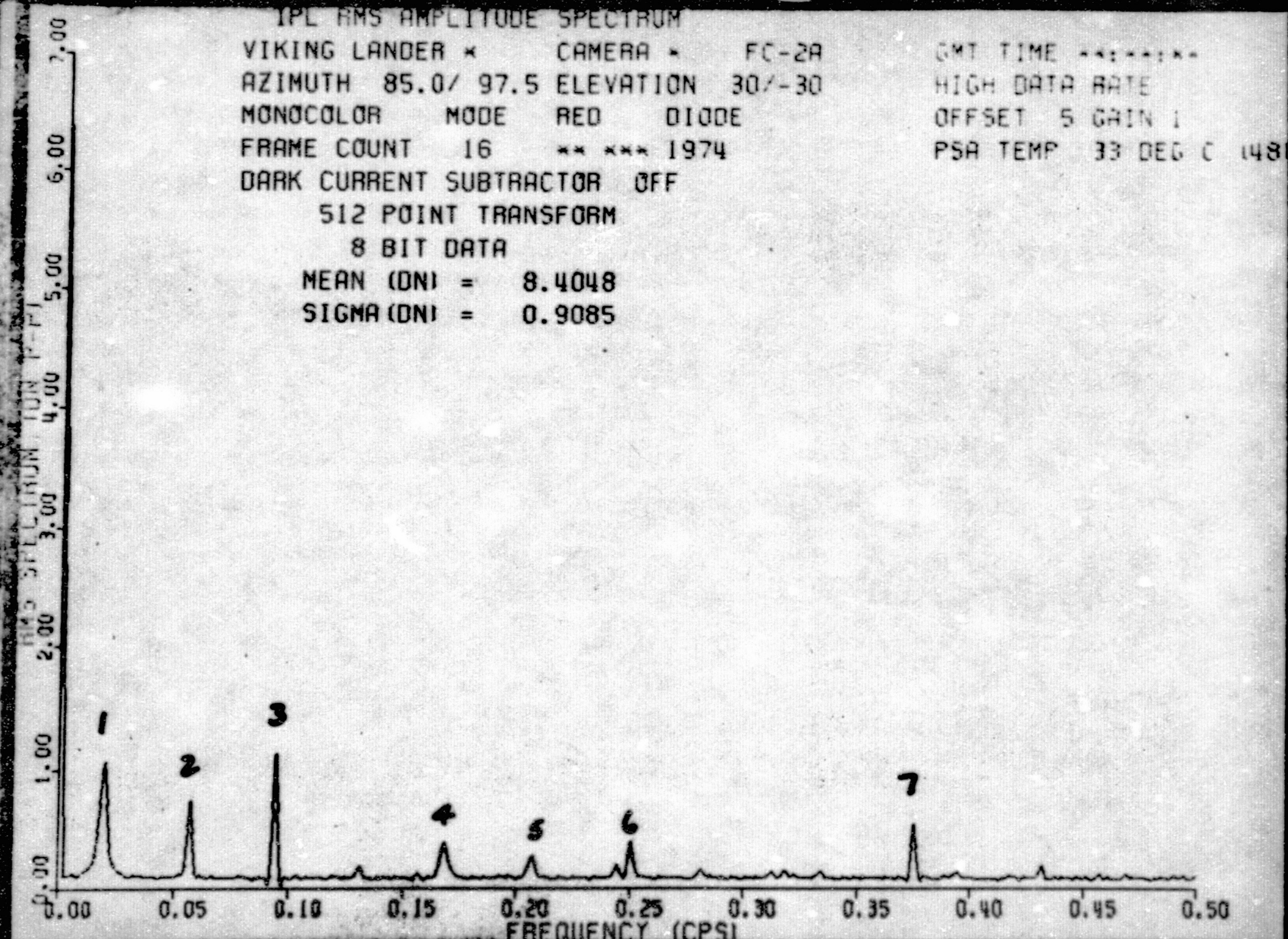

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE BLUE DIODE
OFFSET 1 GAIN 1
FRAME COUNT 11 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.2618
SIGMA(DN) = 2.0813
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

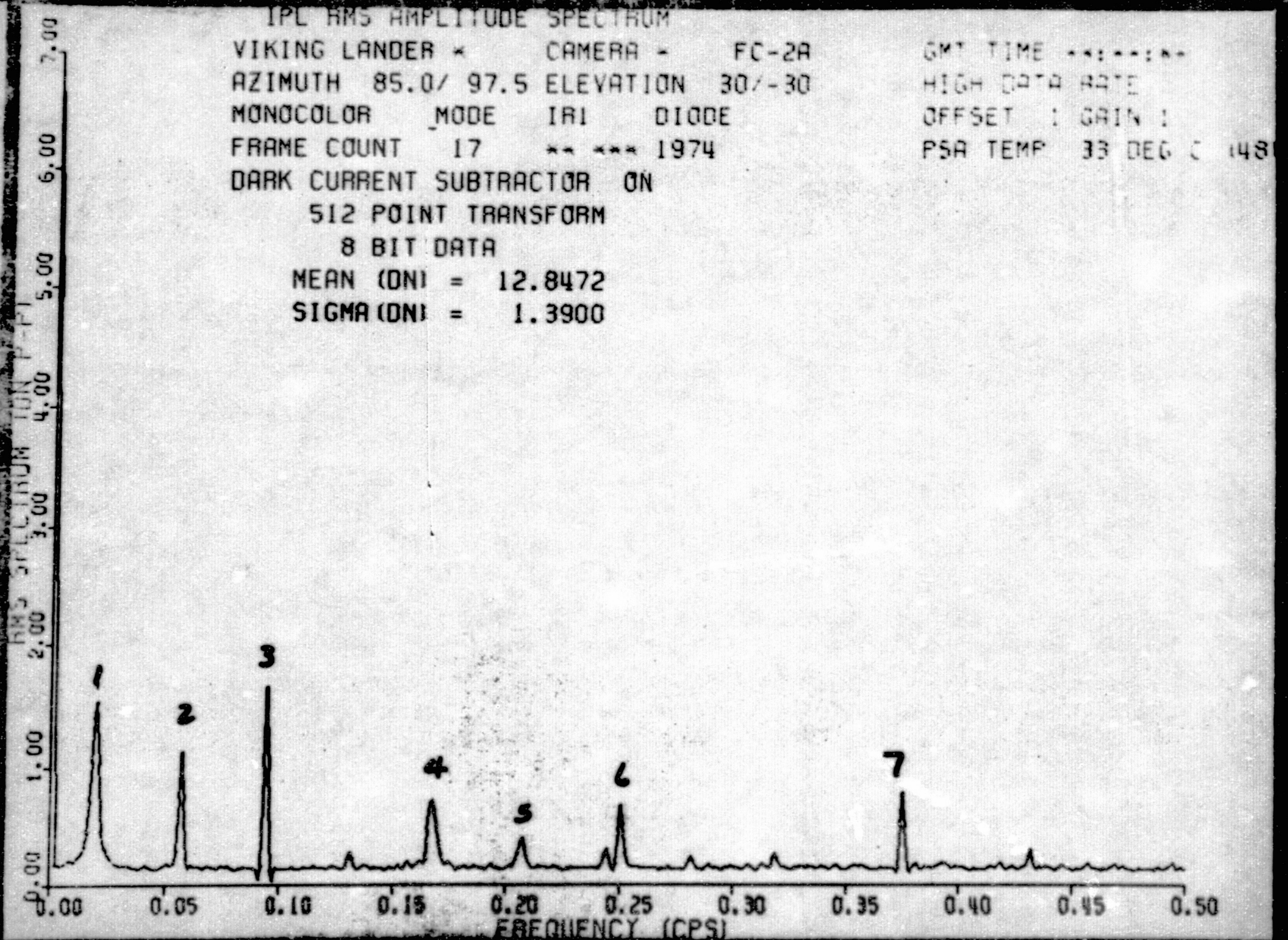

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE BLUE DIODE
OFFSET 6 GAIN 1
FRAME COUNT 12 ** *** 1974
PSA TEMP 33 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 19.9940
SIGMA (DN) = 2.0485
1
2
3
4
5
6
7
8
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

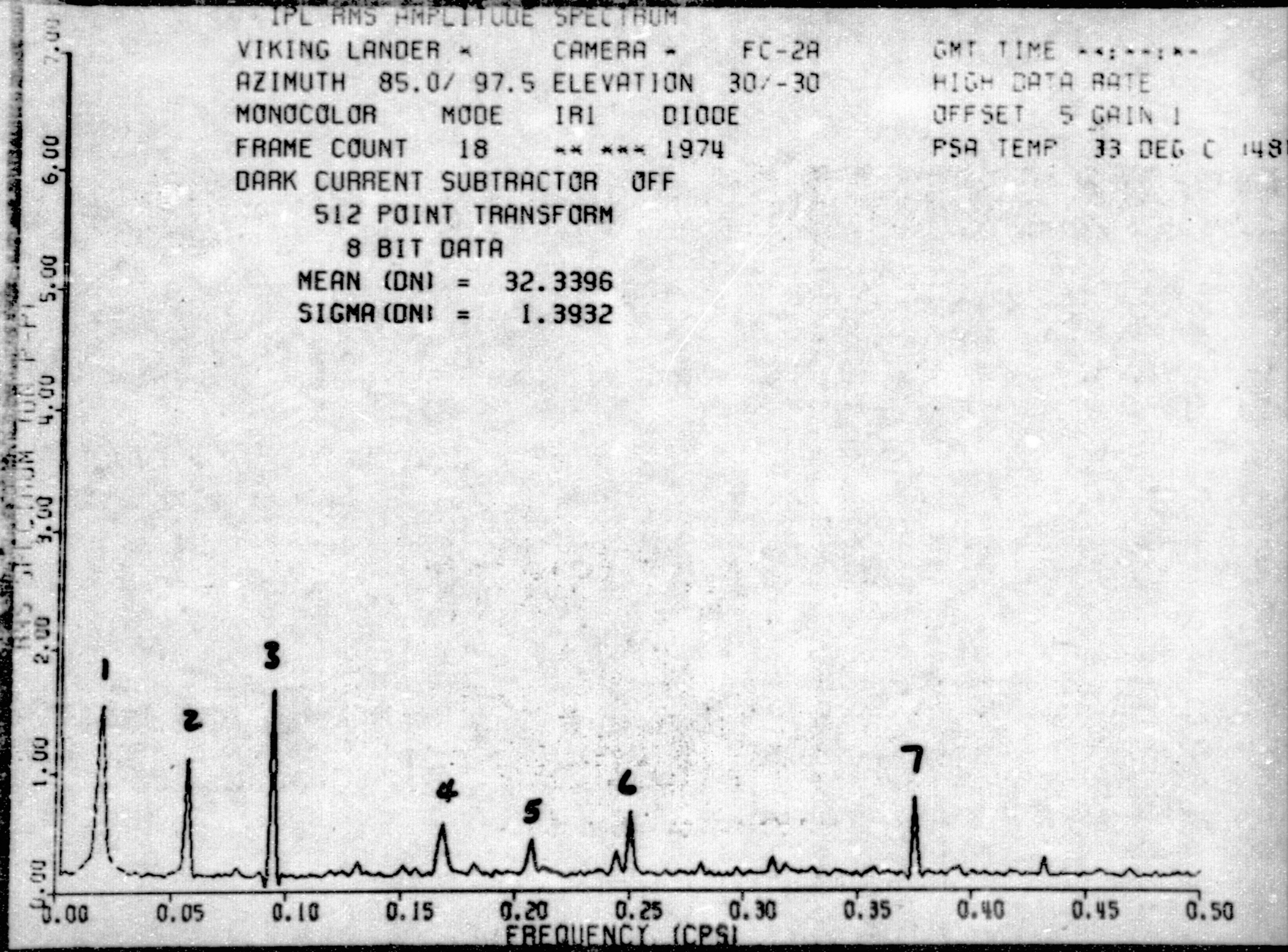

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE GREEN DIODE
OFFSET 1 GAIN 1
FRAME COUNT 13 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.0833
SIGMA(DN) = 2.1840
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

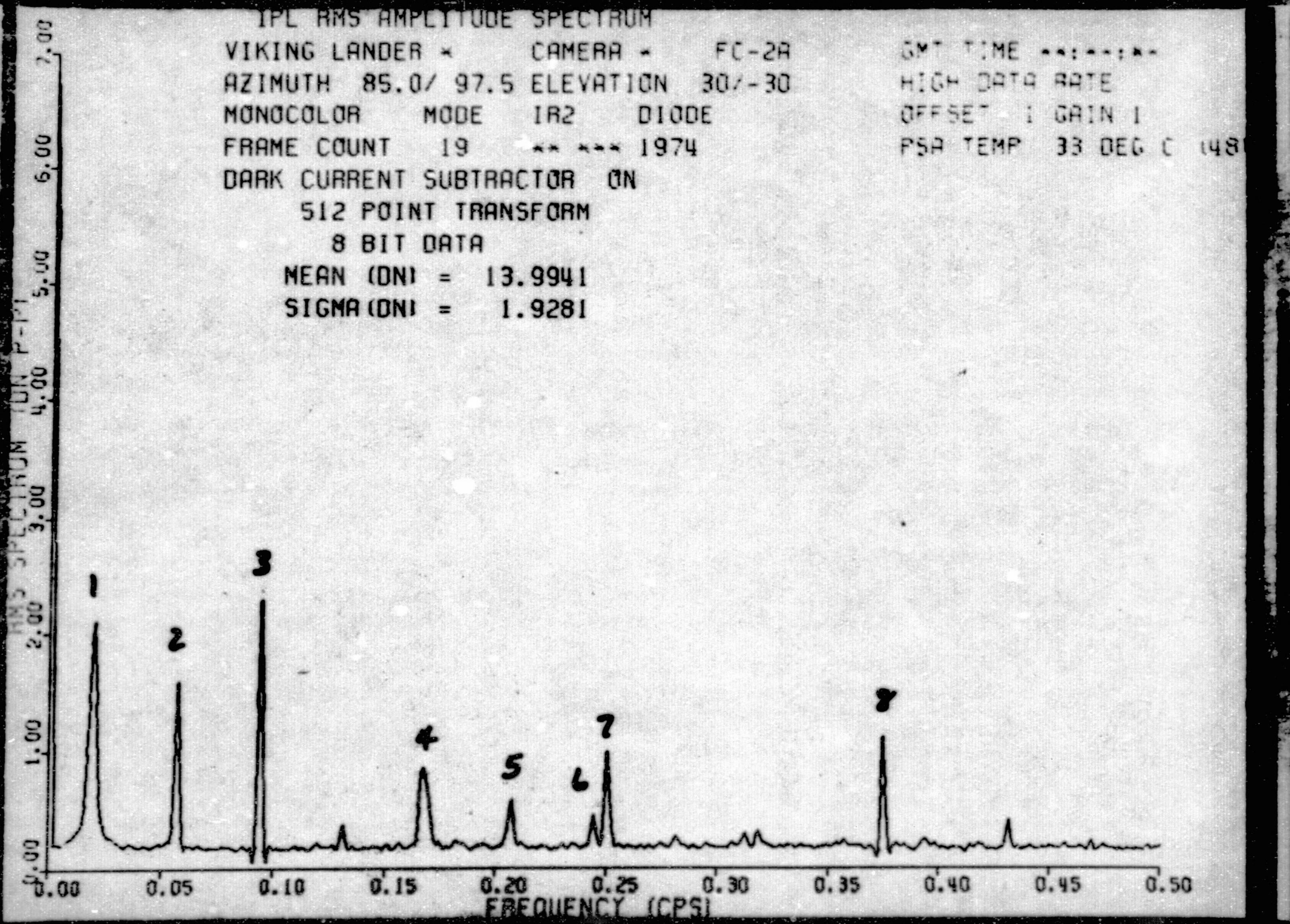

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE GREEN DIODE
FRAME COUNT 14 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.8033
SIGMA (DN) = 2.2068
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 6 GAIN 1
PSA TEMP 33 DEG C (48
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
9
10
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

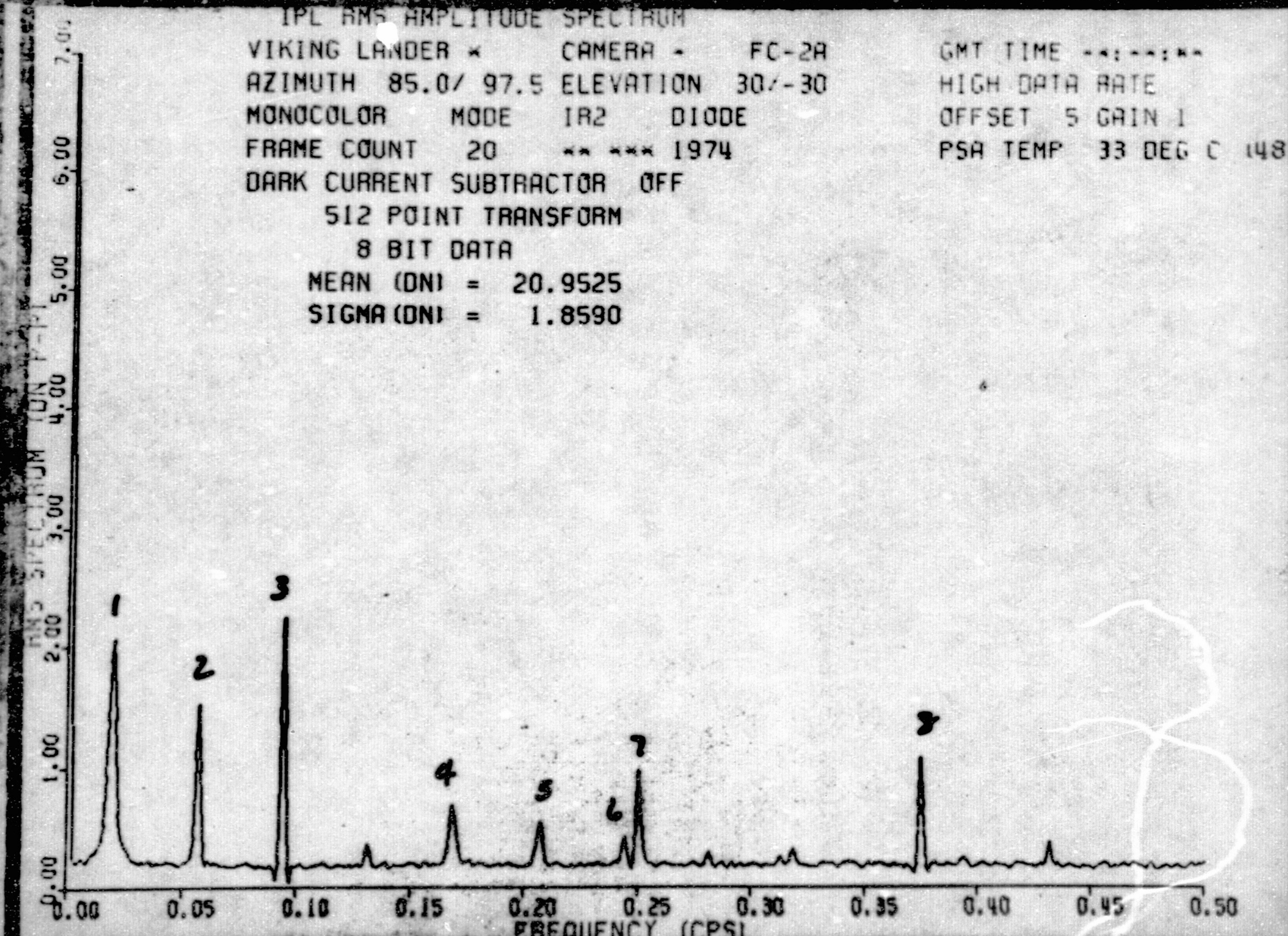

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE RED DIODE
OFFSET 1 GAIN 1
FRAME COUNT 15 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.4328
SIGMA (DN) = 0.9200
1
2
3
4
5
6
7
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE RED DIODE
OFFSET 5 GAIN 1
FRAME COUNT 16 ** *** 1974
PSA TEMP 33 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 8.4048
SIGMA(DN) = 0.9085
1
2
3
4
5
6
7
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

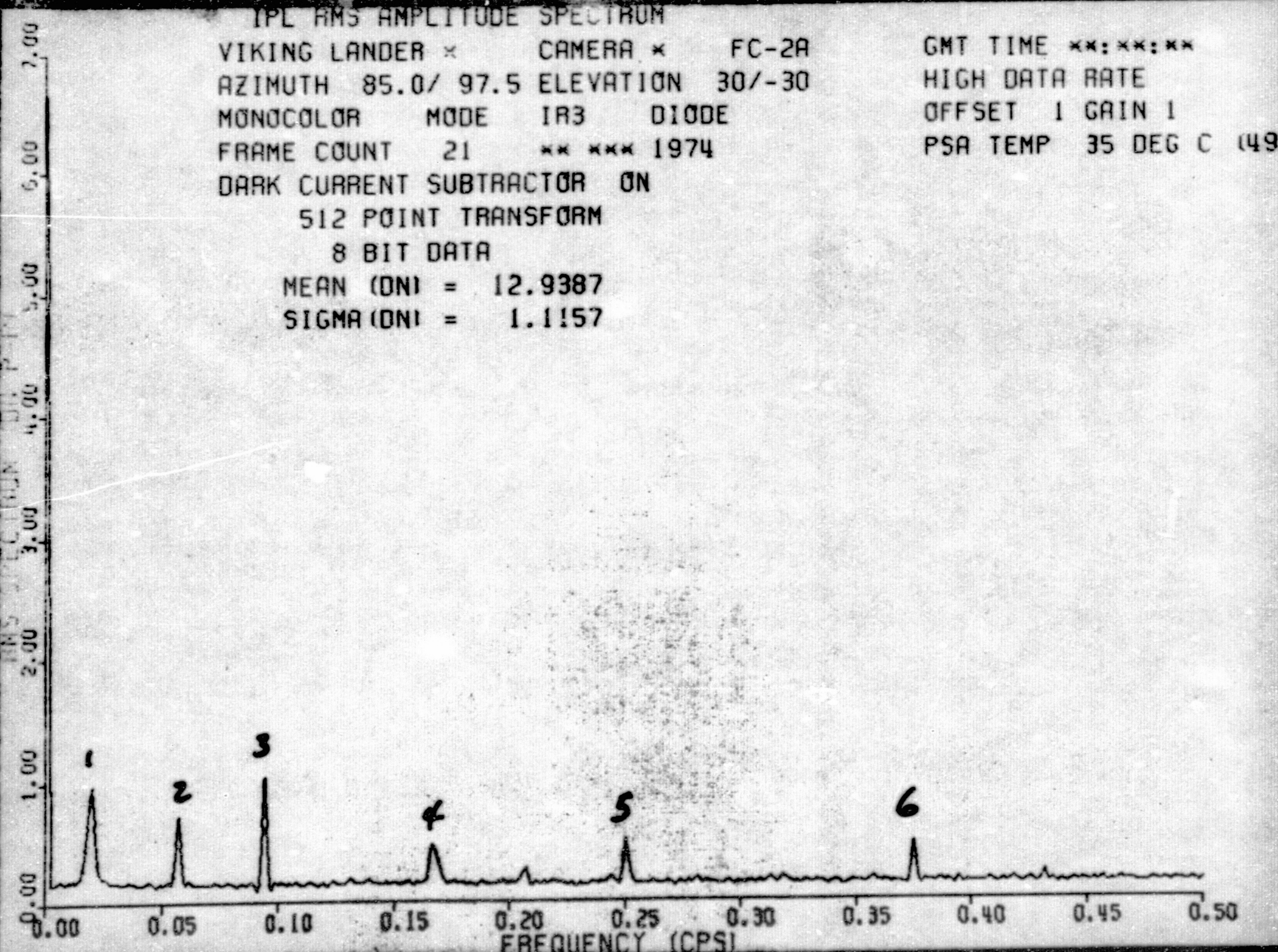

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA - FC-2A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR1 DIODE
FRAME COUNT 17 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 12.8472
SIGMA (DN) = 1.3900
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 33 DEG C 148
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA - FC-2A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR1 DIODE
FRAME COUNT 18 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 32.3396
SIGMA(DN) = 1.3932
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 33 DEG C
1
2
3
4
5
6
7
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR2 DIODE
FRAME COUNT 19 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.9941
SIGMA (DN) = 1.9281
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 33 DEG C
RMS SPECTRUM (DN P-P)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

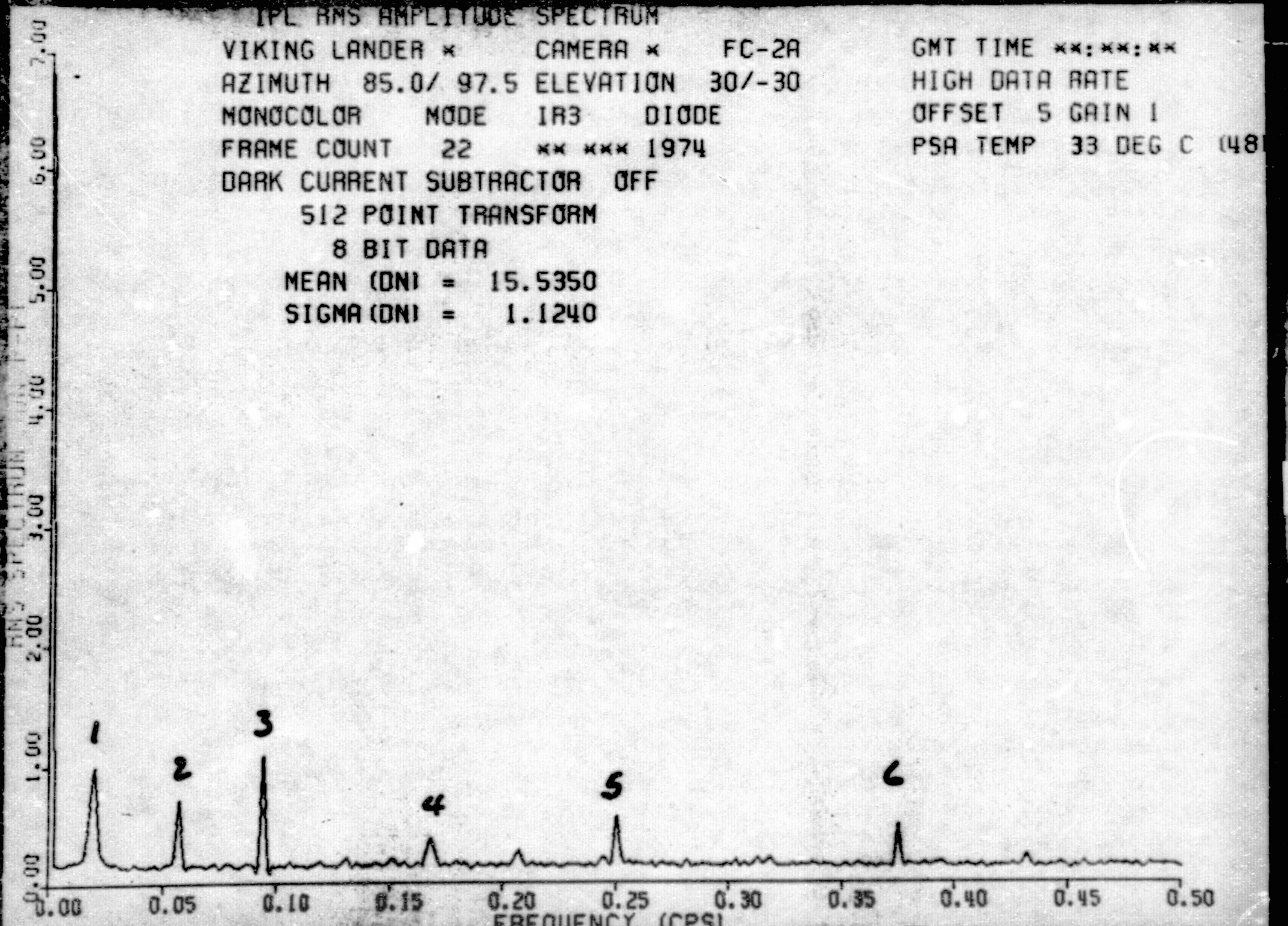

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA -
FC-2A
GMT TIME --:--:--
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR2 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 20 ** *** 1974
PSA TEMP 33 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 20.9525
SIGMA (DN) = 1.8590
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

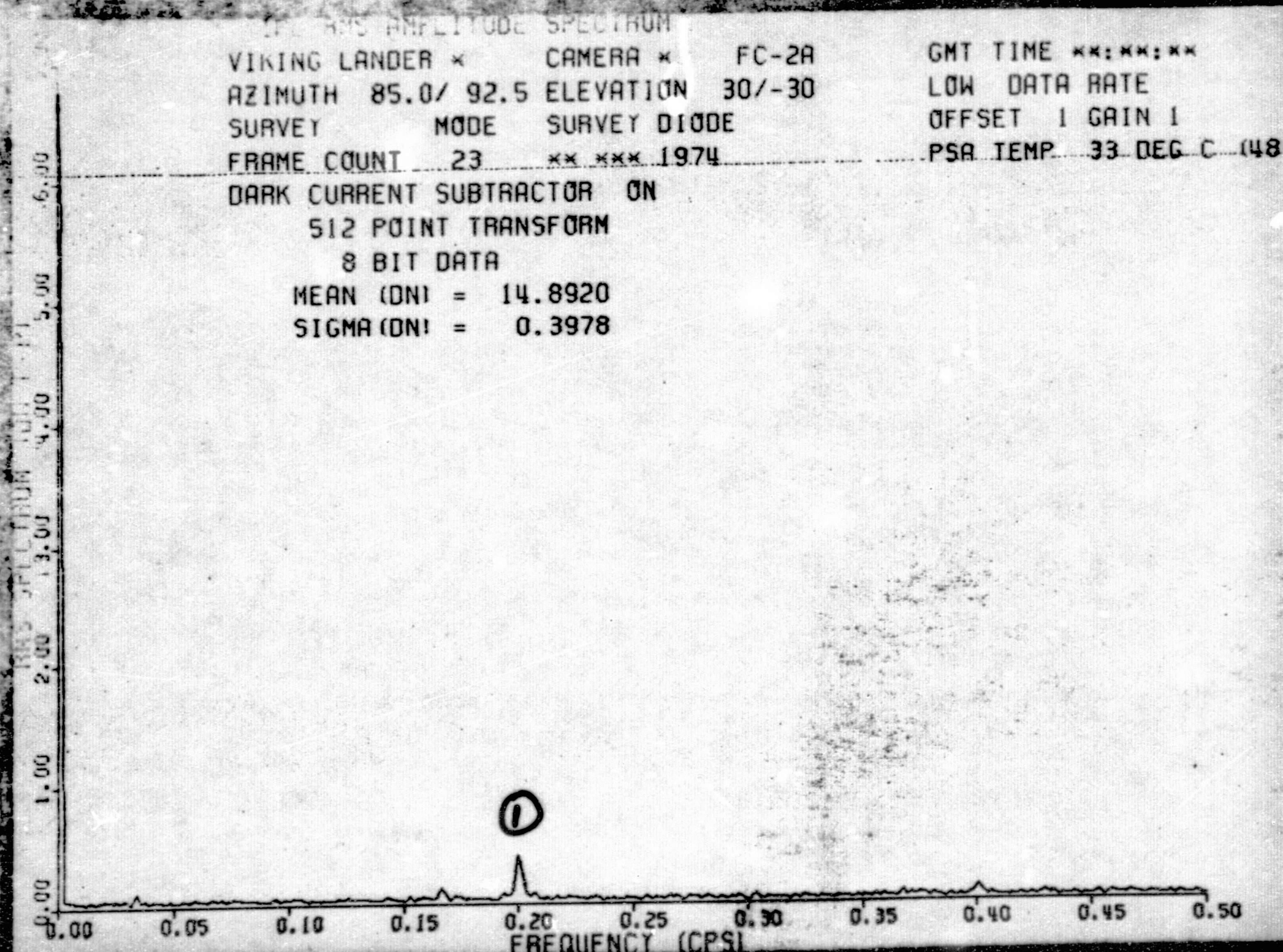
624

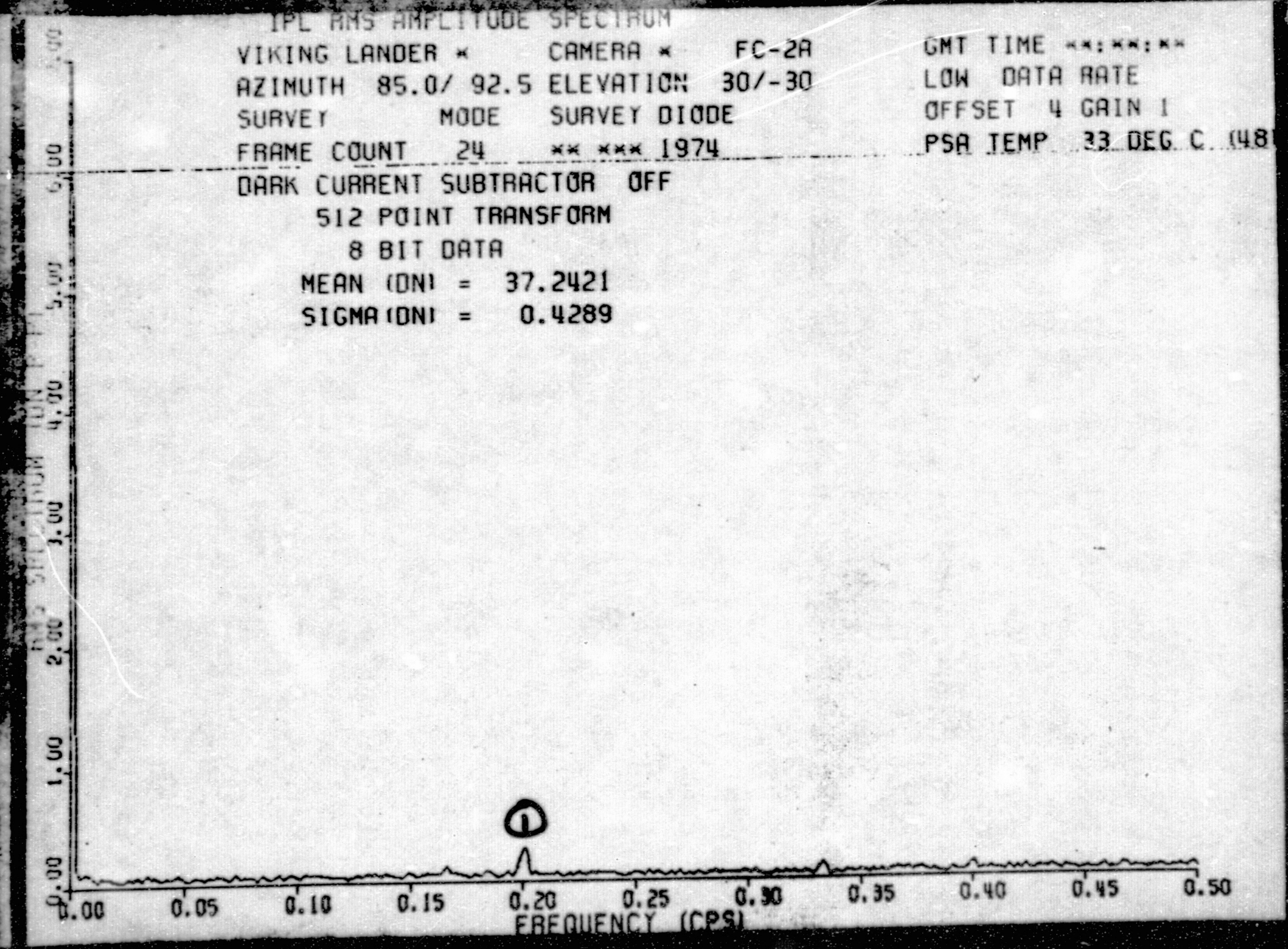


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR3 DIODE
FRAME COUNT 21 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 12.9387
SIGMA(DN) = 1.1157
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 35 DEG C (49
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

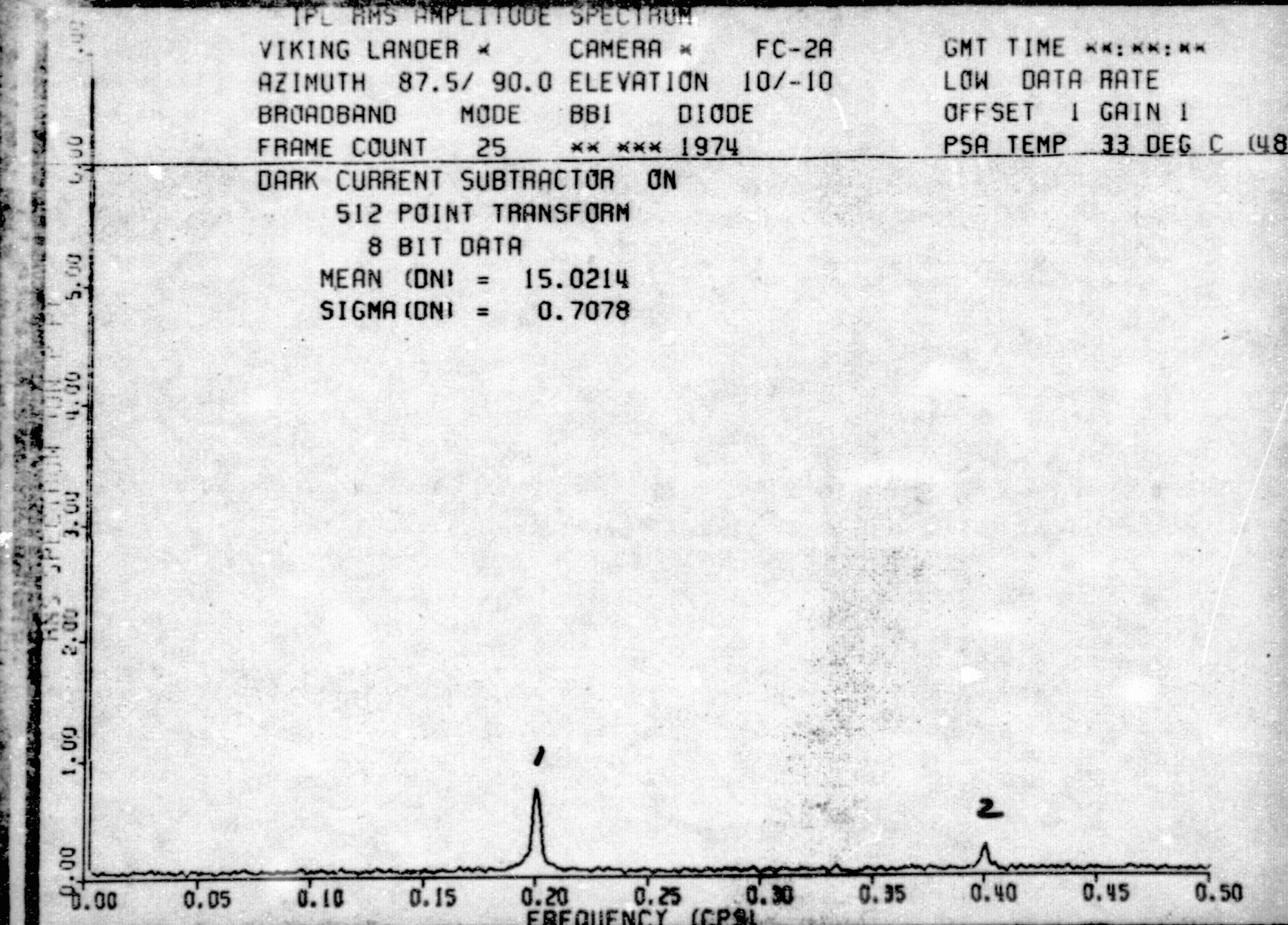
625

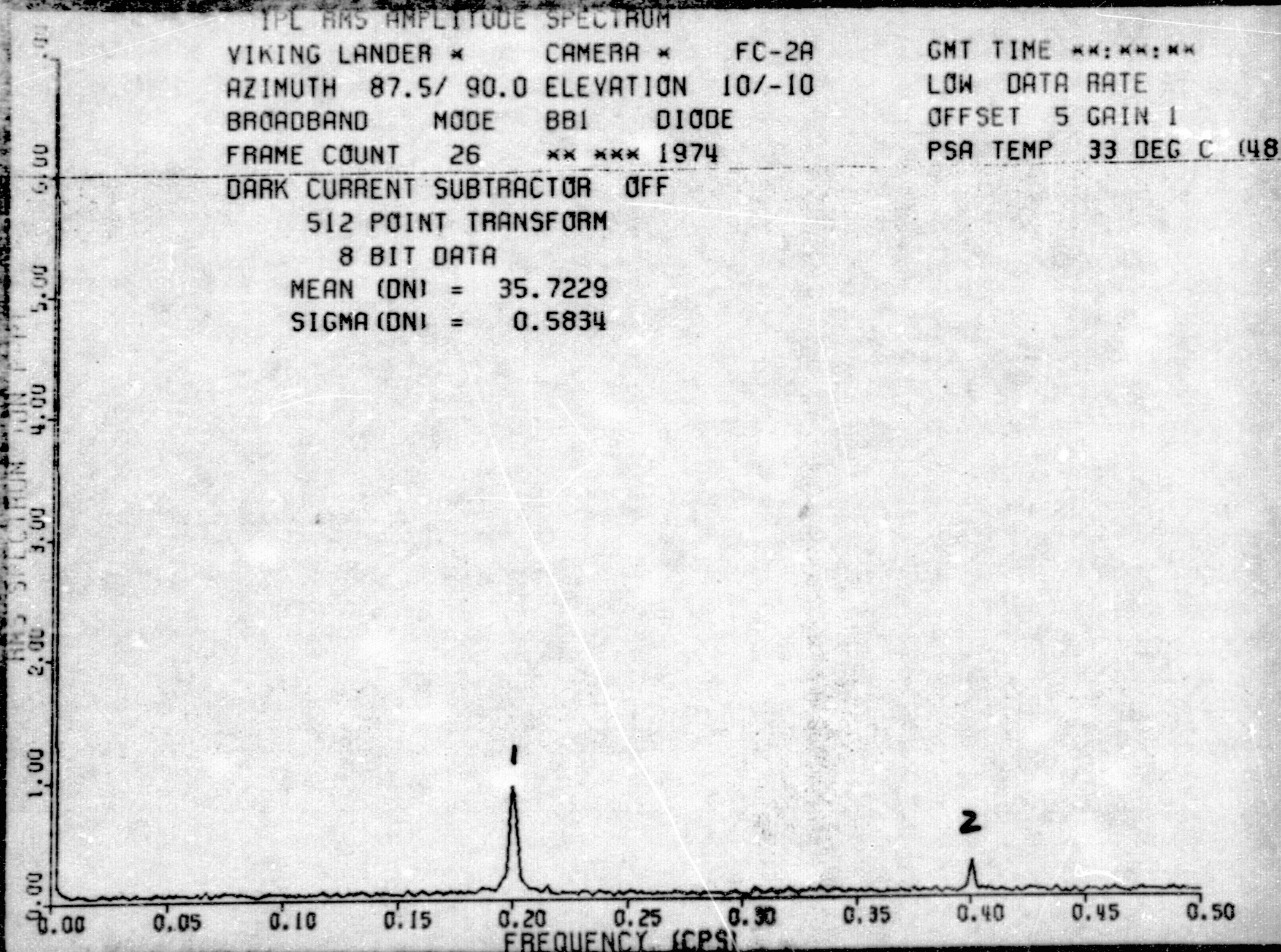

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR3 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 22 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.5350
SIGMA (DN) = 1.1240
1
2
3
4
5
6
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


RMS AMPLITUDE SPECTRUM
VIKING LANDER × CAMERA × FC-2A
GMT TIME ××:××:××
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
LOW DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 1 GAIN 1
FRAME COUNT 23 ×× ××× 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.8920
SIGMA(DN) = 0.3978
1
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

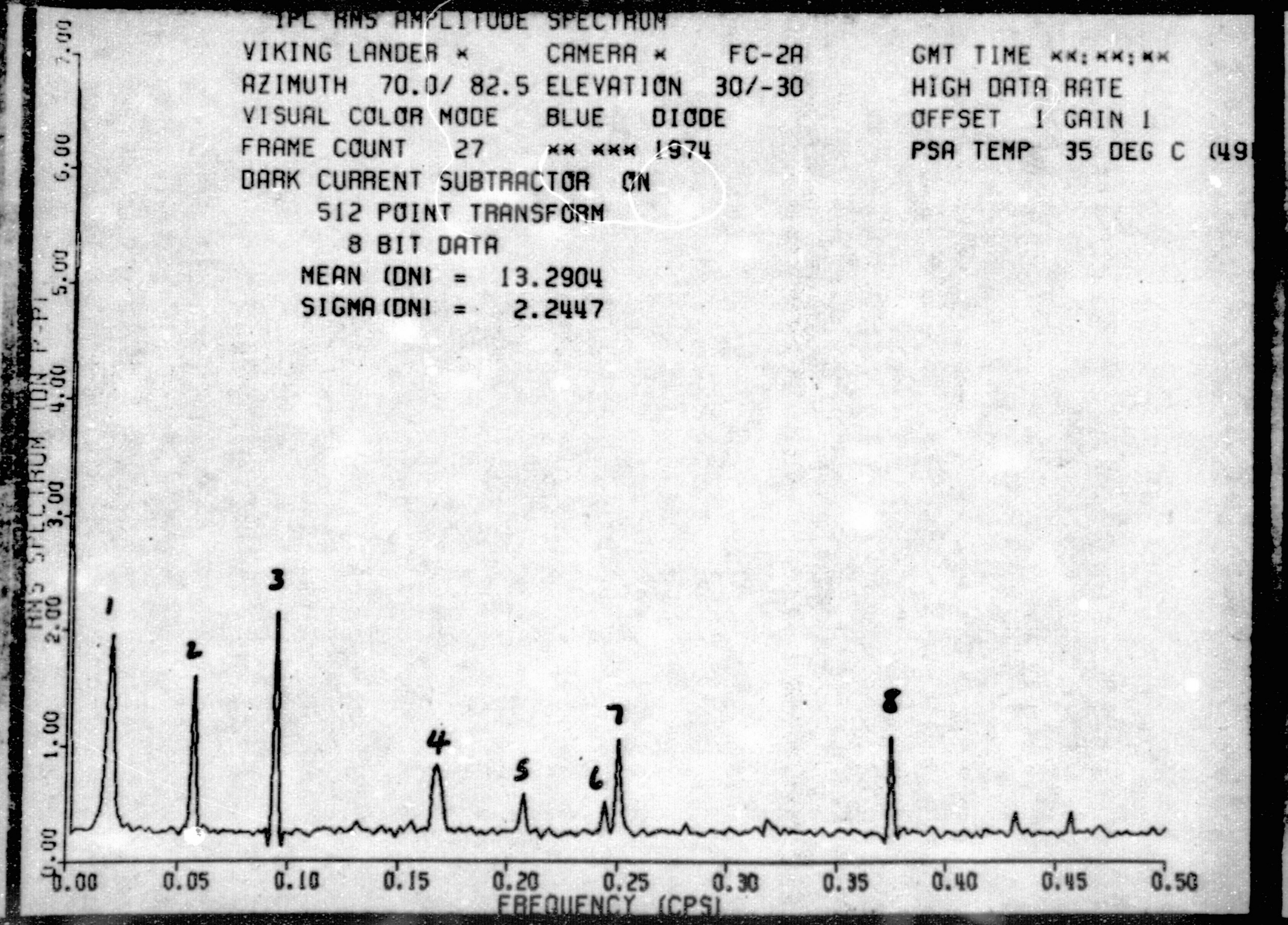

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 24 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 37.2421
SIGMA(DN) = 0.4289
GMT TIME **:**:**
LOW DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 33 DEG C (48
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

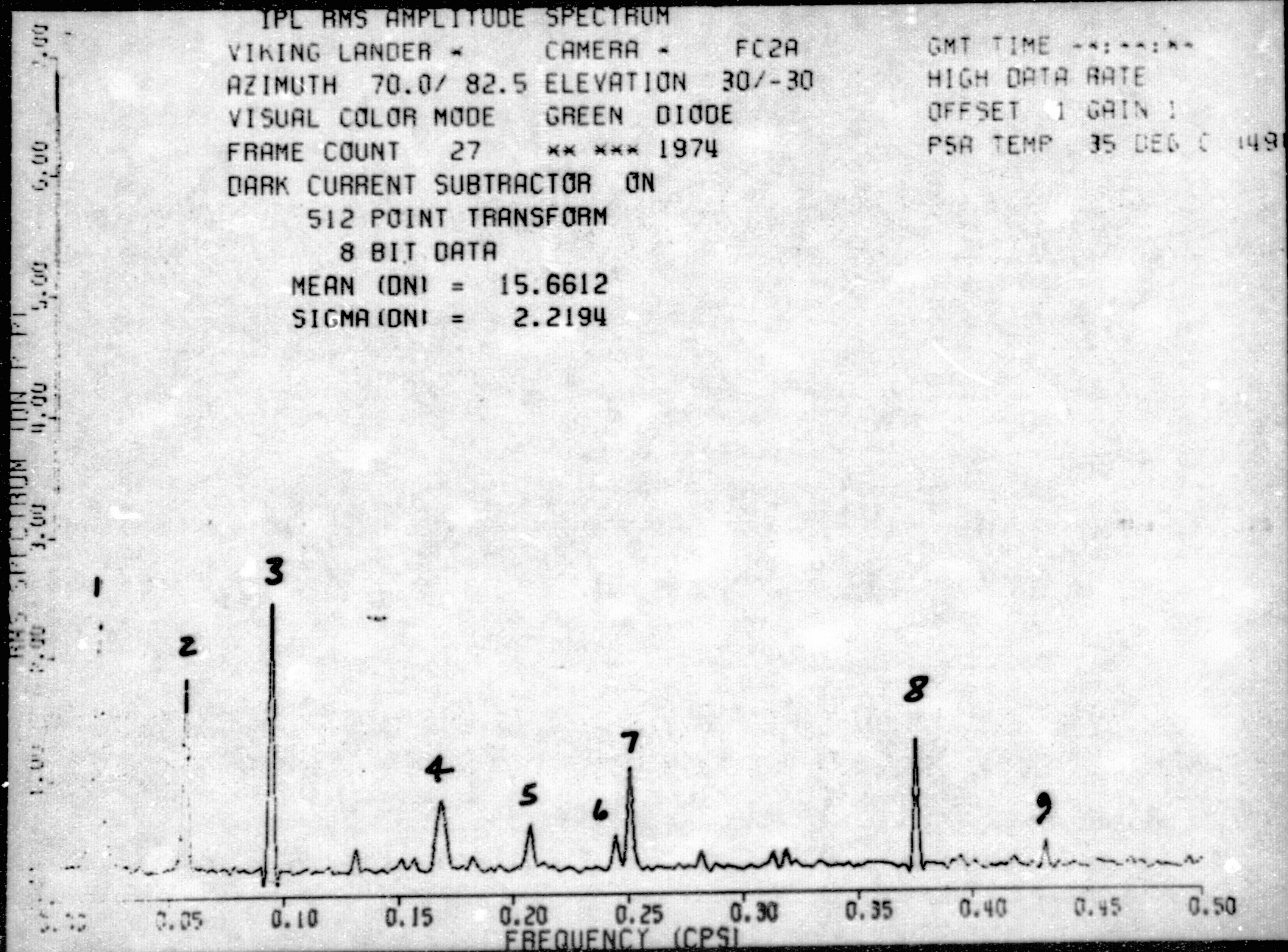
628


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
LOW DATA RATE
BROADBAND MODE BBI DIODE
OFFSET 1 GAIN 1
FRAME COUNT 25 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.0214
SIGMA(DN) = 0.7078
1
2
0.00
1.00
2.00
3.00
4.00
5.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

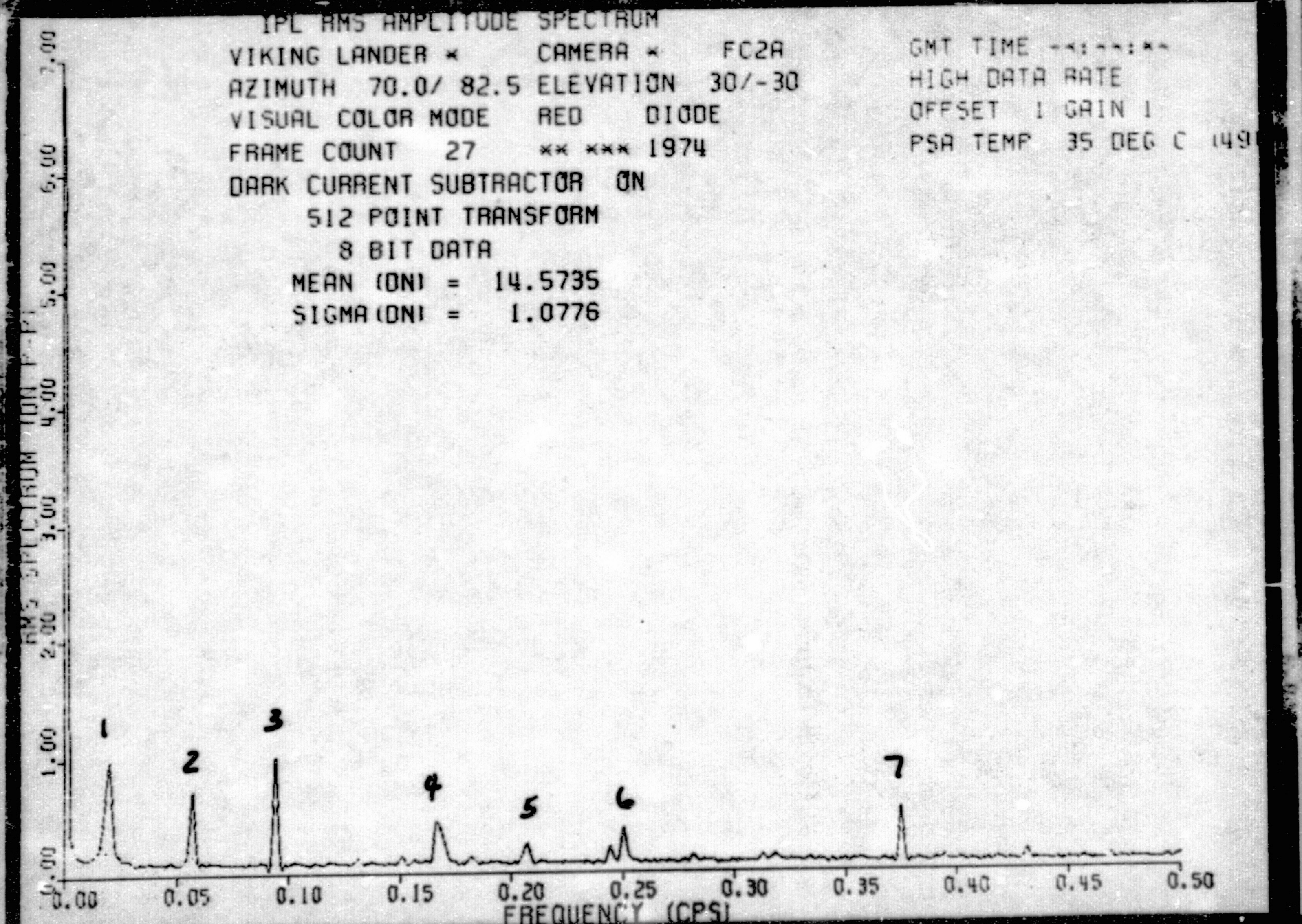

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-2A
GMT TIME **:**:**
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
LOW DATA RATE
BROADBAND MODE BB1 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 26 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 35.7229
SIGMA(DN) = 0.5834
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

630

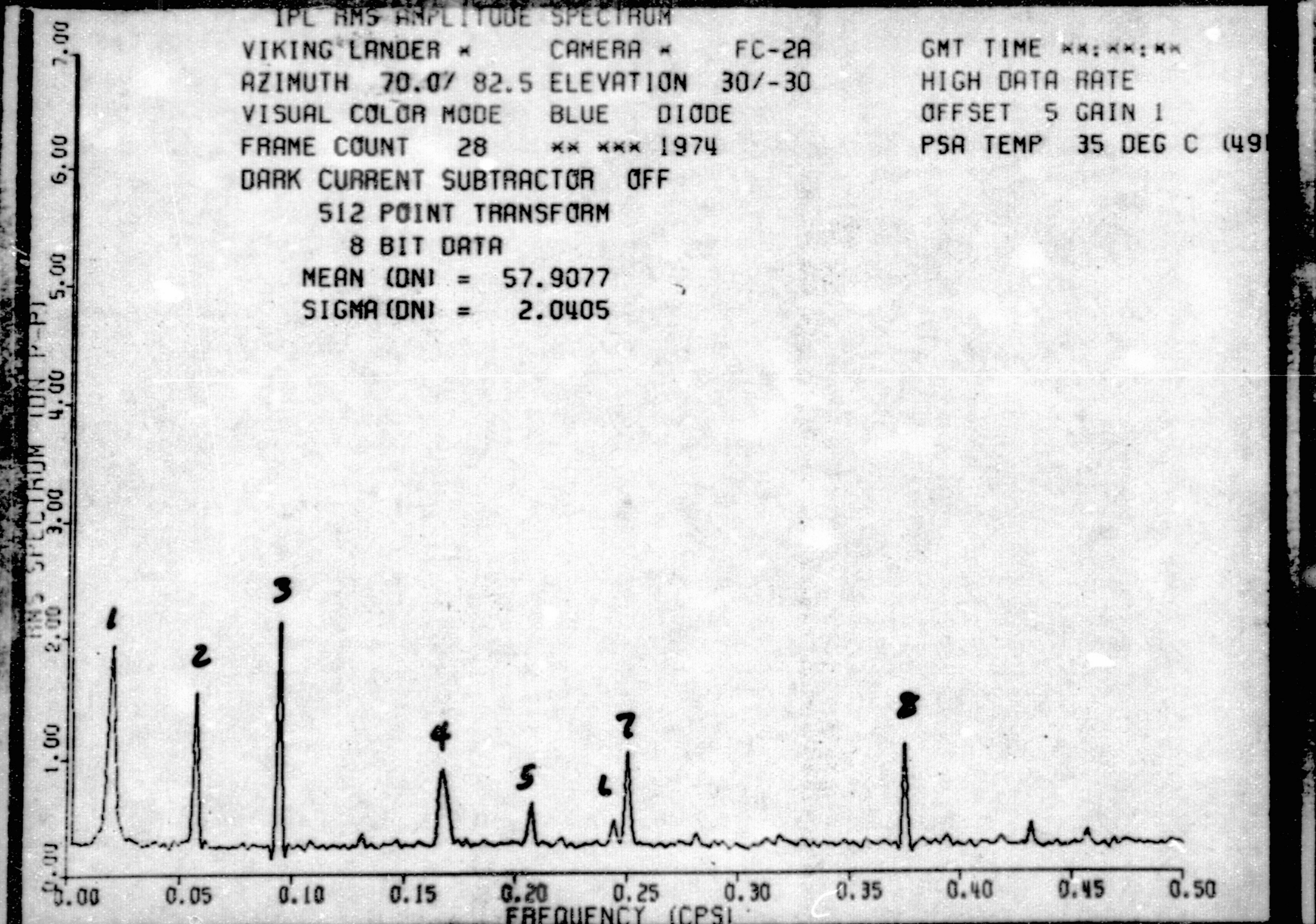

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-2A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
BLUE DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27
** *** 1974
PSA TEMP 35 DEG C (49
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.2904
SIGMA (DN) = 2.2447
RMS SPECTRUM (DN P-P)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

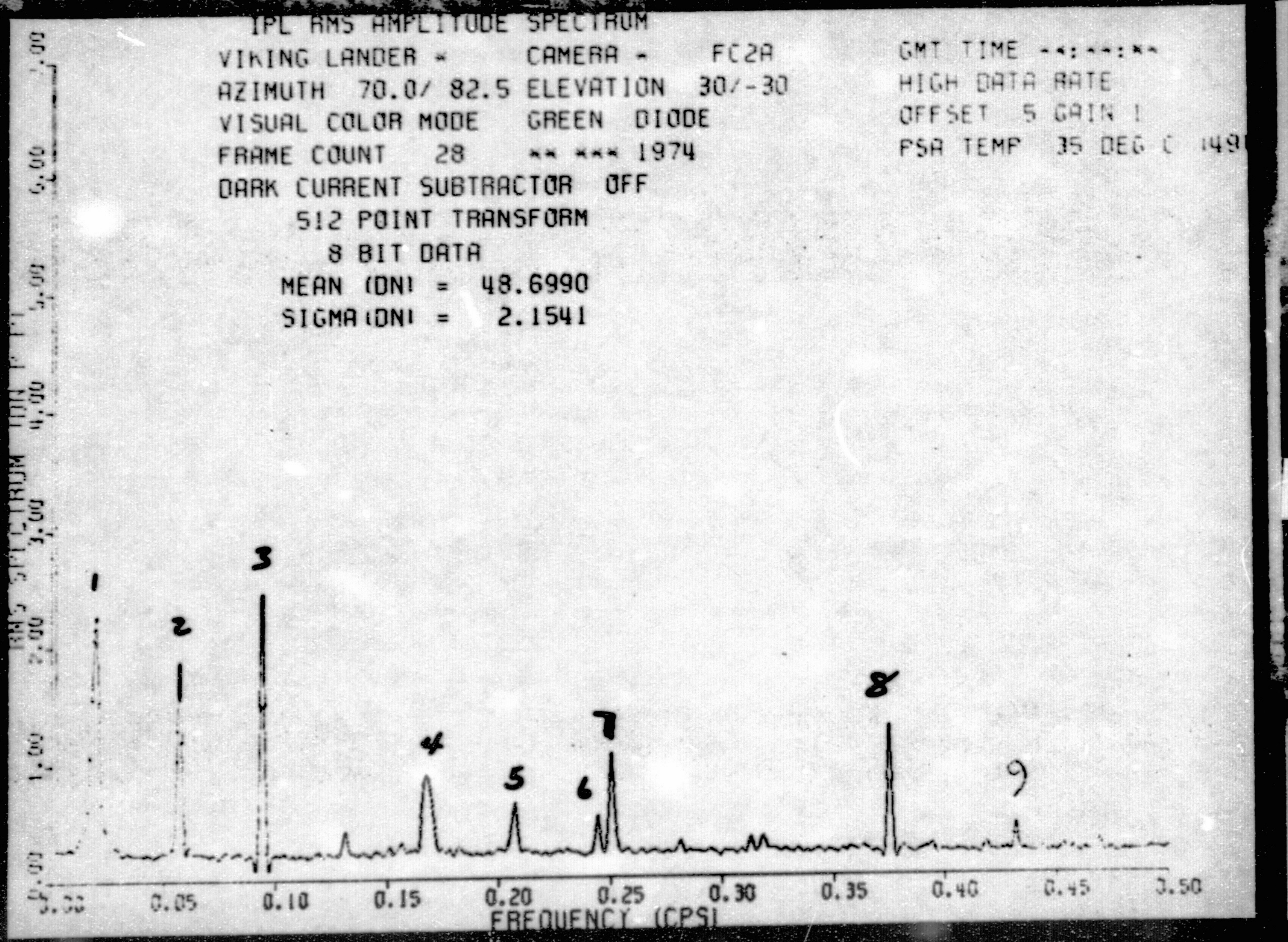


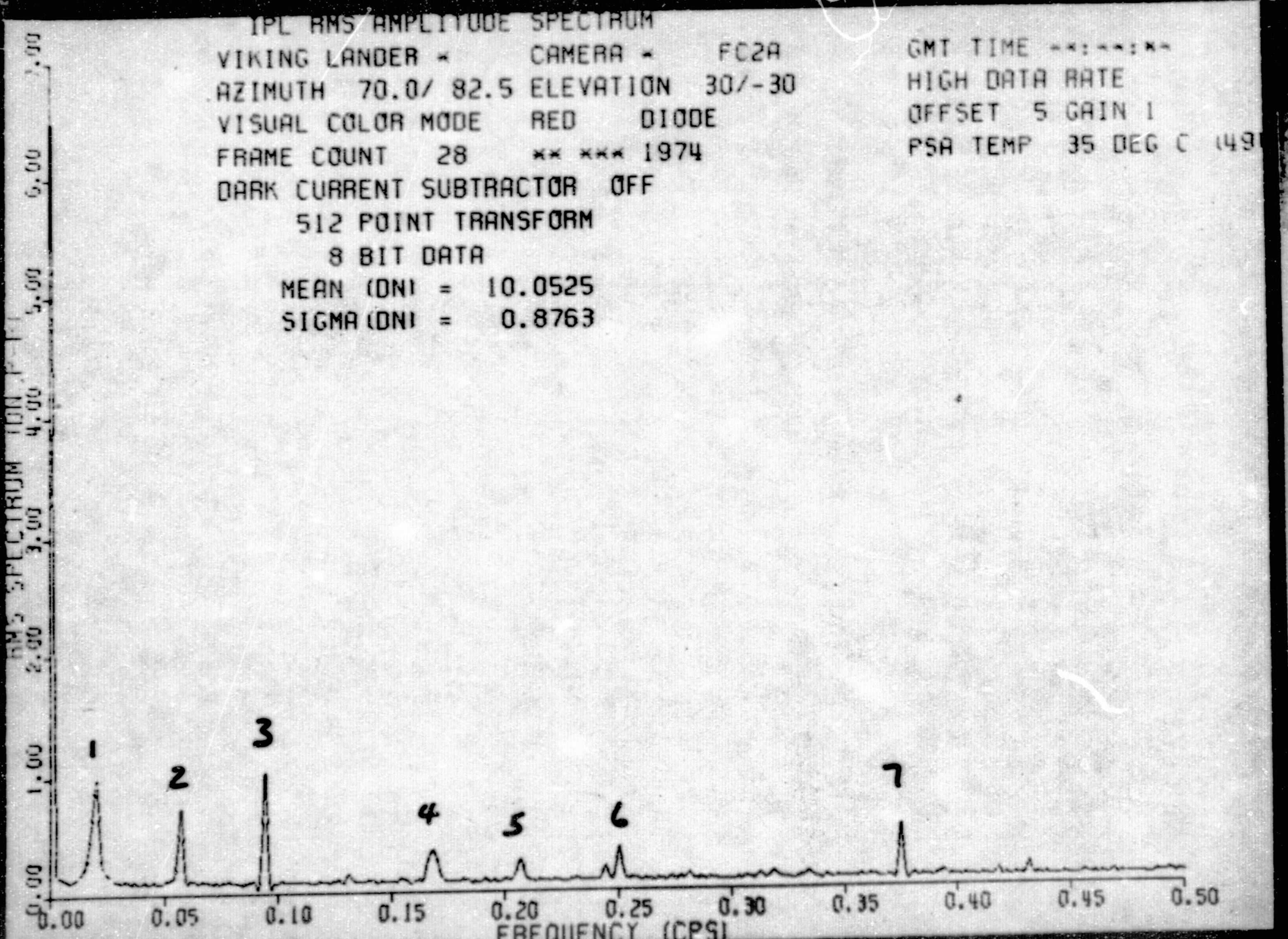
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA -
FC2A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
GREEN DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27
** *** 1974
PSA TEMP 35 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.6612
SIGMA(DN) = 2.2194
RMS SPECTRUM
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
7
8
9
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



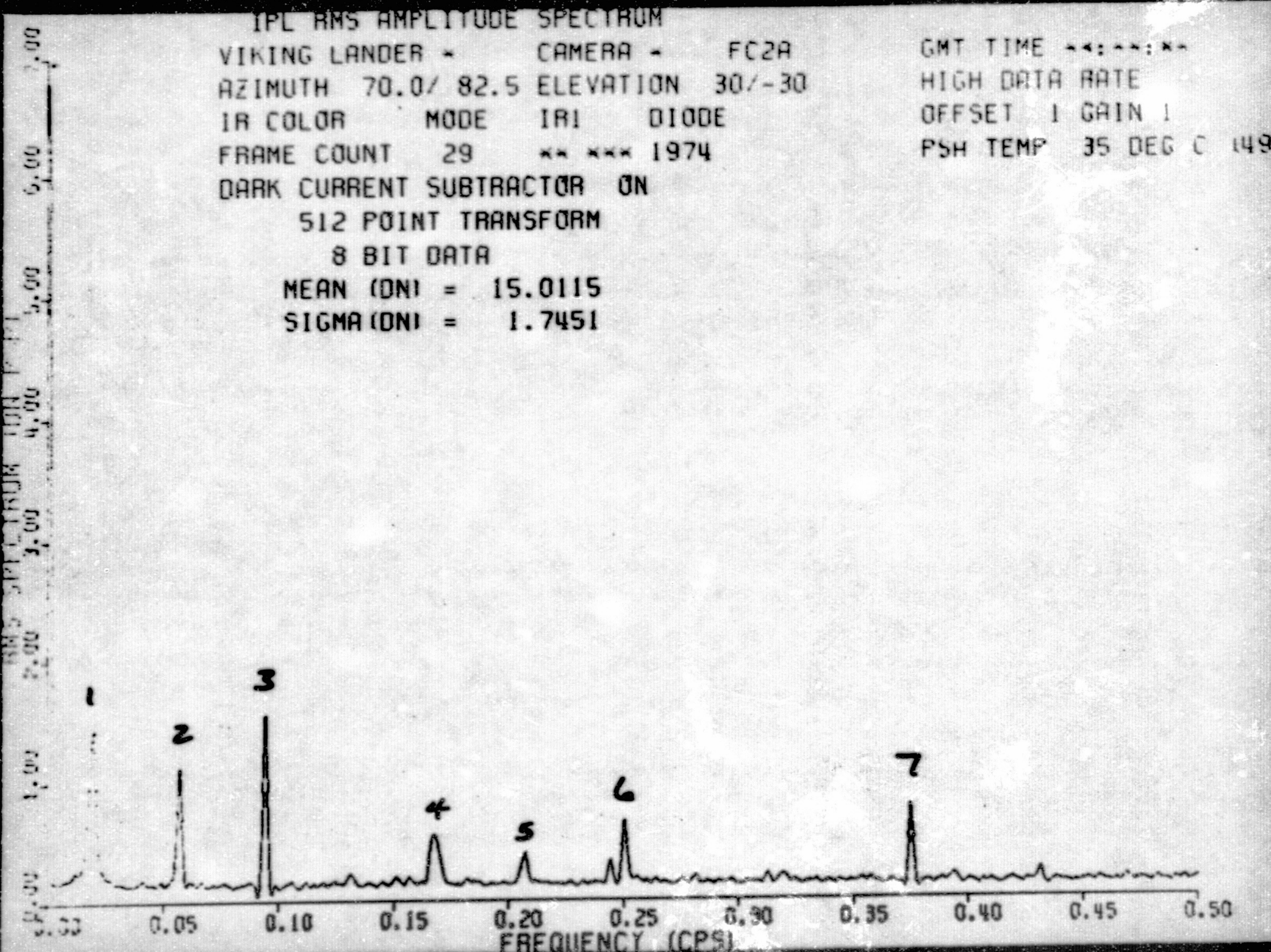
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * FC2A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE RED DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27 ** *** 1974
PSA TEMP 35 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.5735
SIGMA(DN) = 1.0776
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
7
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

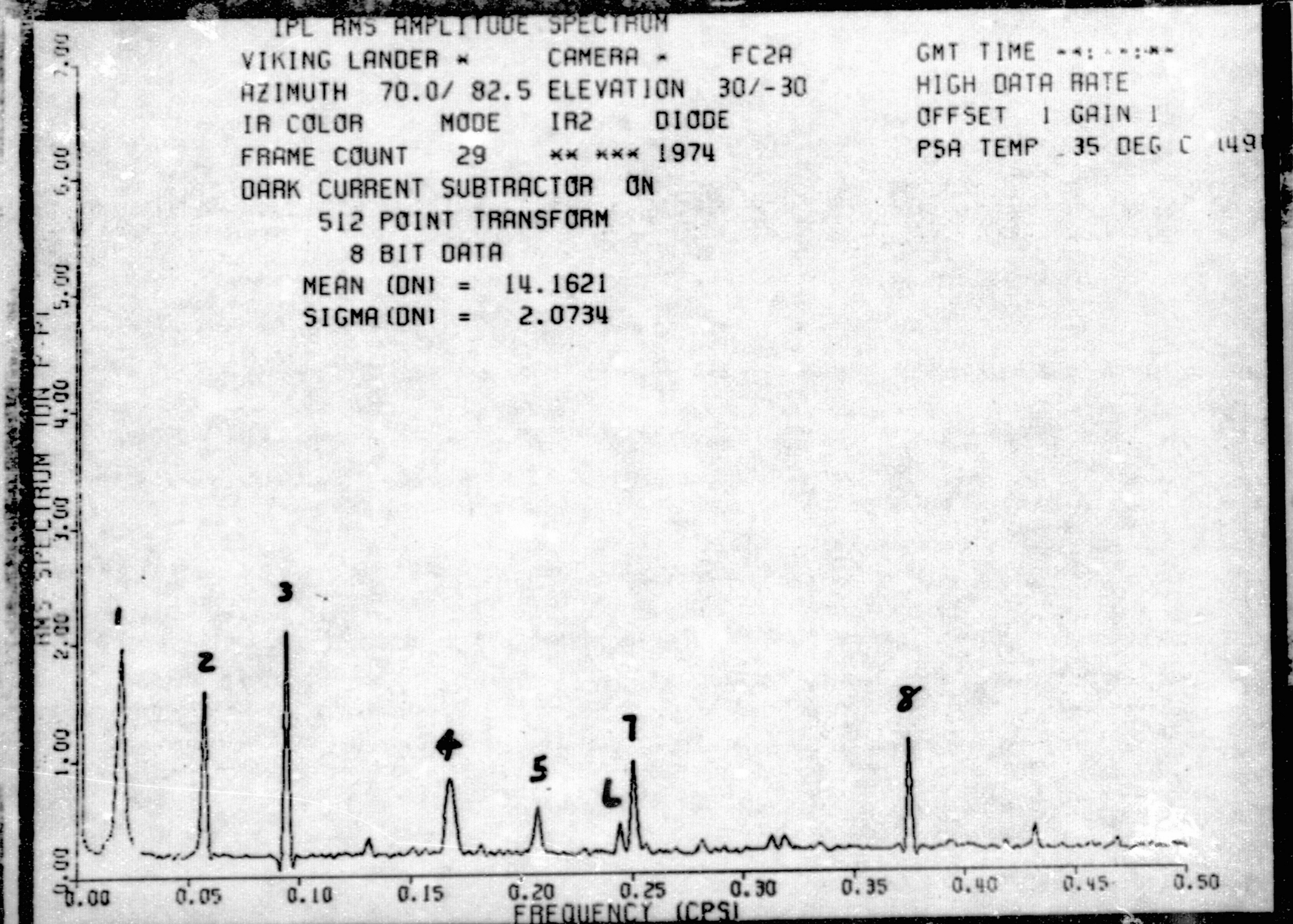

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-2A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
BLUE DIODE
OFFSET 5 GAIN 1
FRAME COUNT 28
** *** 1974
PSA TEMP 35 DEG C (49
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 57.9077
SIGMA (DN) = 2.0405
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
8
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

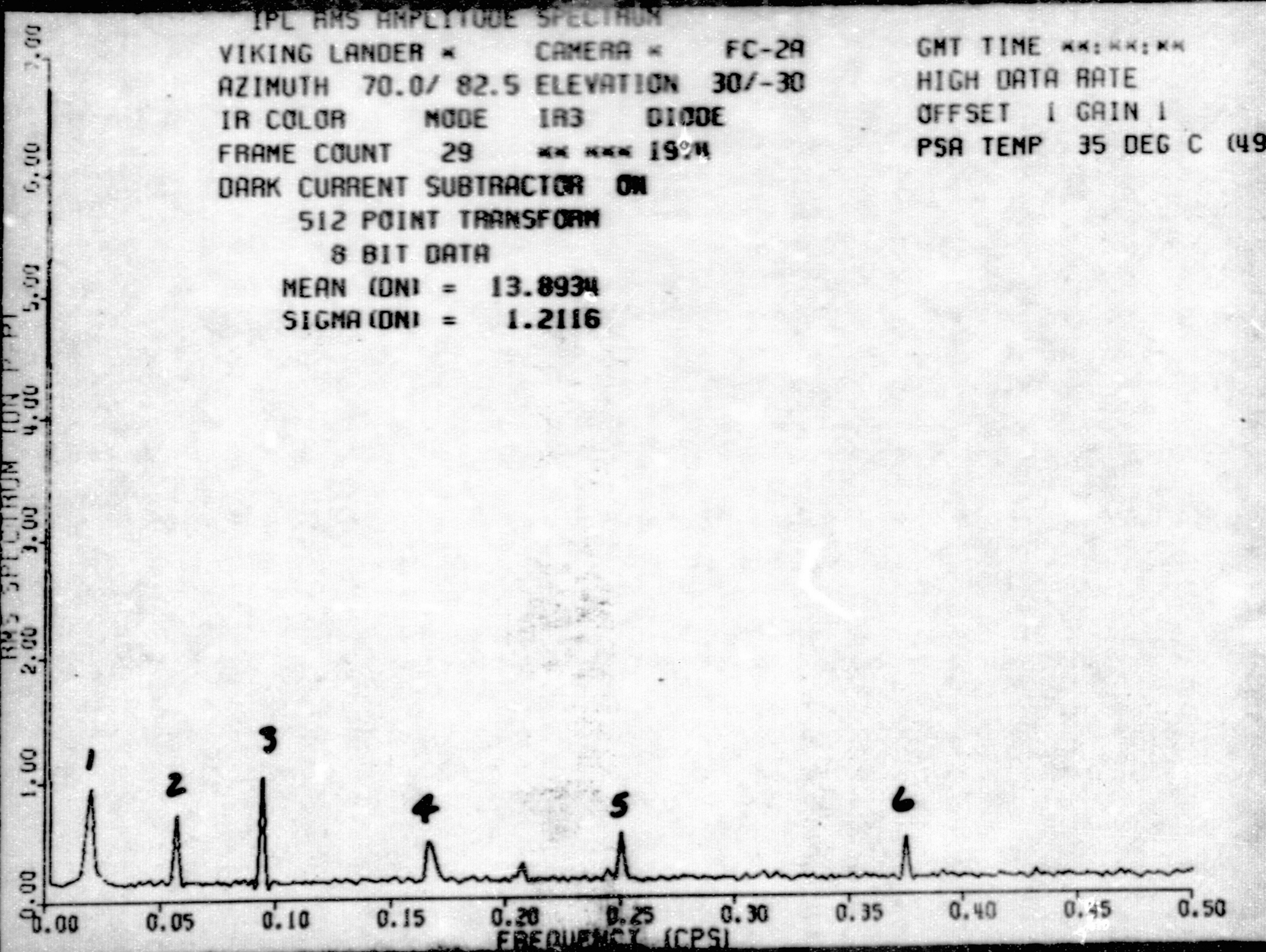

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA - FC2A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
VISUAL COLOR MODE GREEN DIODE
FRAME COUNT 28 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 48.6990
SIGMA(DN) = 2.1541
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 35 DEG C
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
5
6
7
8
9
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

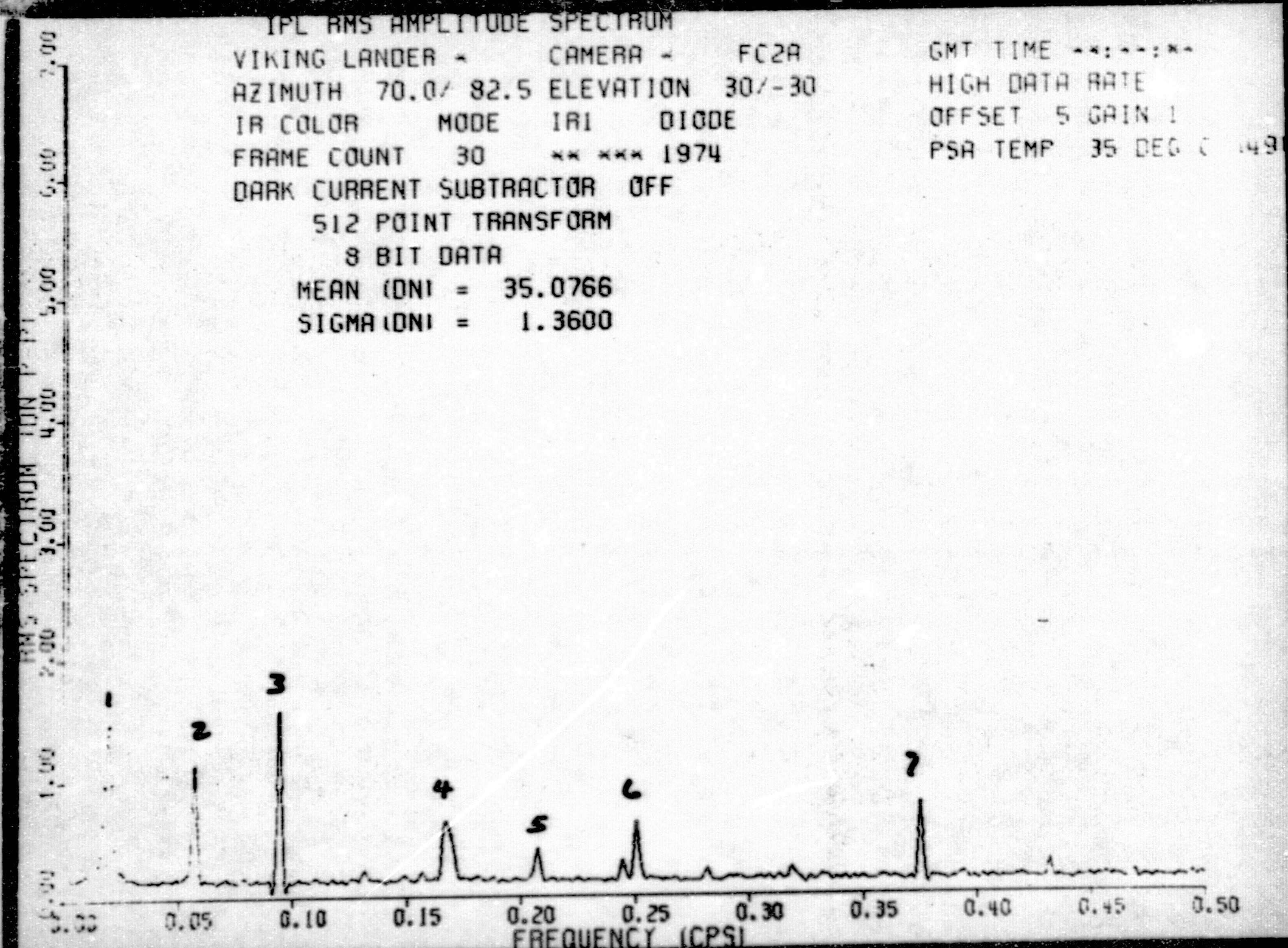


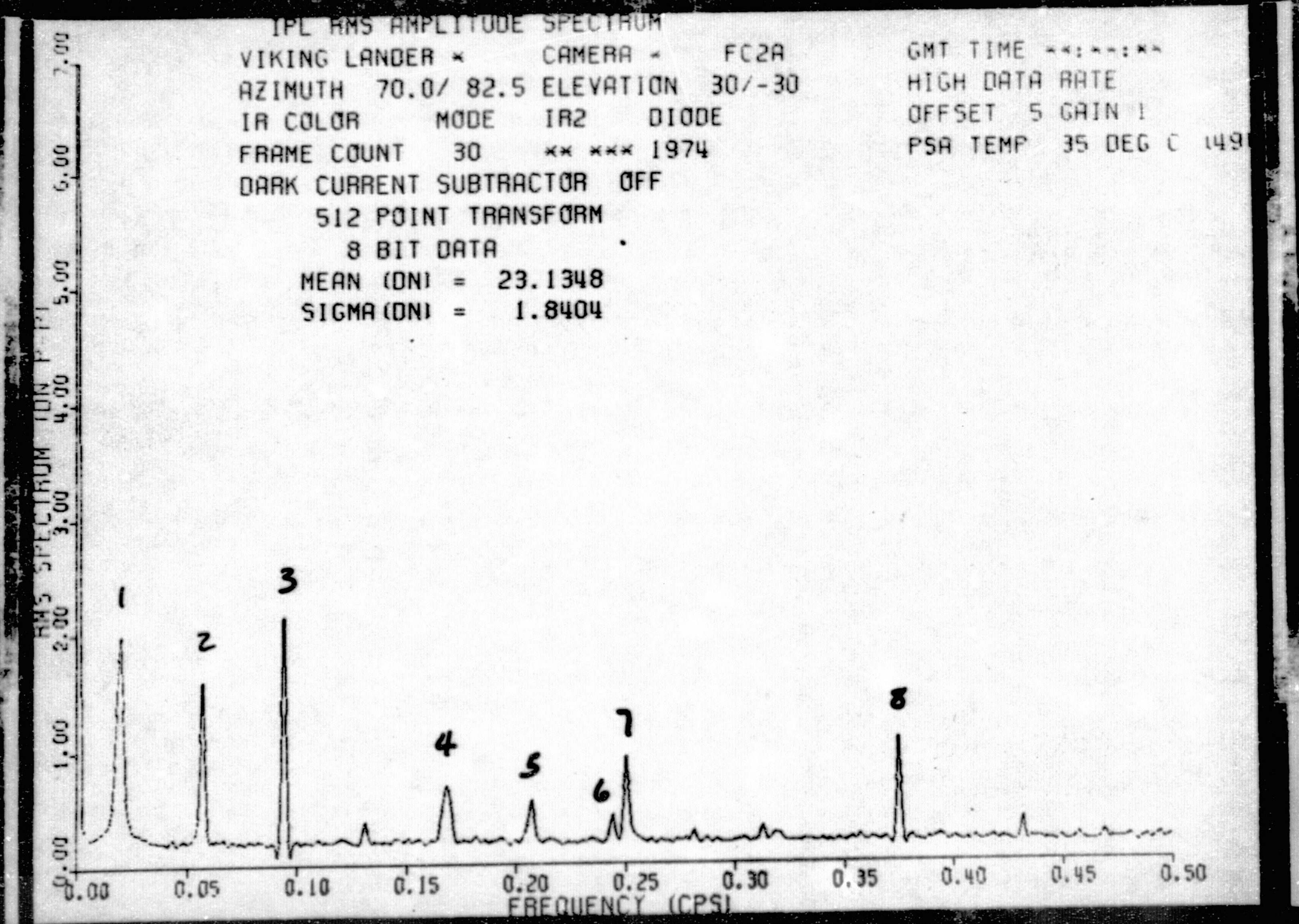
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC2A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
VISUAL COLOR MODE RED DIODE
FRAME COUNT 28 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 10.0525
SIGMA(DN) = 0.8763
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 35 DEG C (49
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

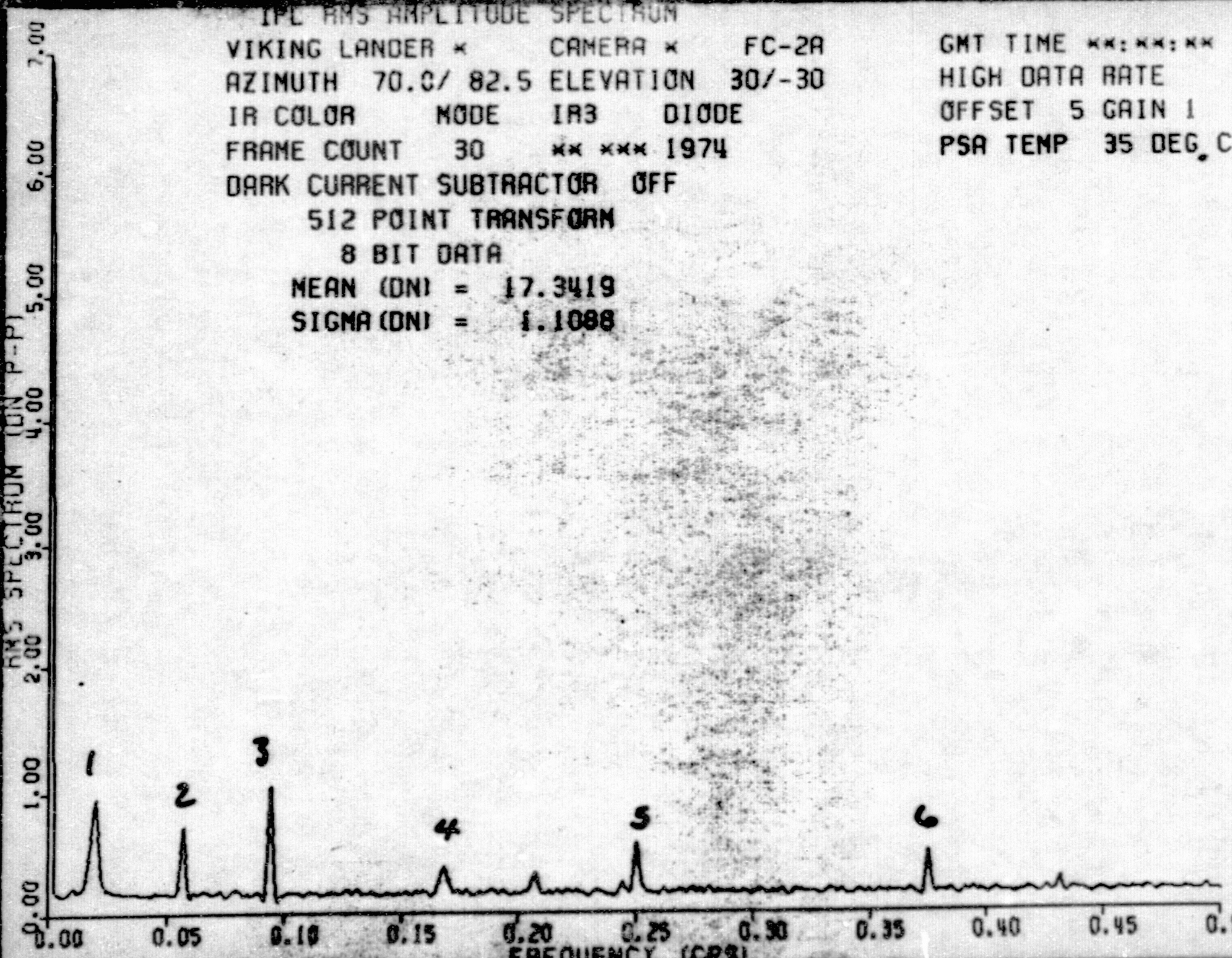

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER -
CAMERA - FC2A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
IR COLOR MODE IR1 DIODE
OFFSET 1 GAIN 1
FRAME COUNT 29 ** *** 1974
PSH TEMP 35 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.0115
SIGMA(DN) = 1.7451
1
2
3
4
5
6
7
1.00
2.00
3.00
4.00
5.00
6.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

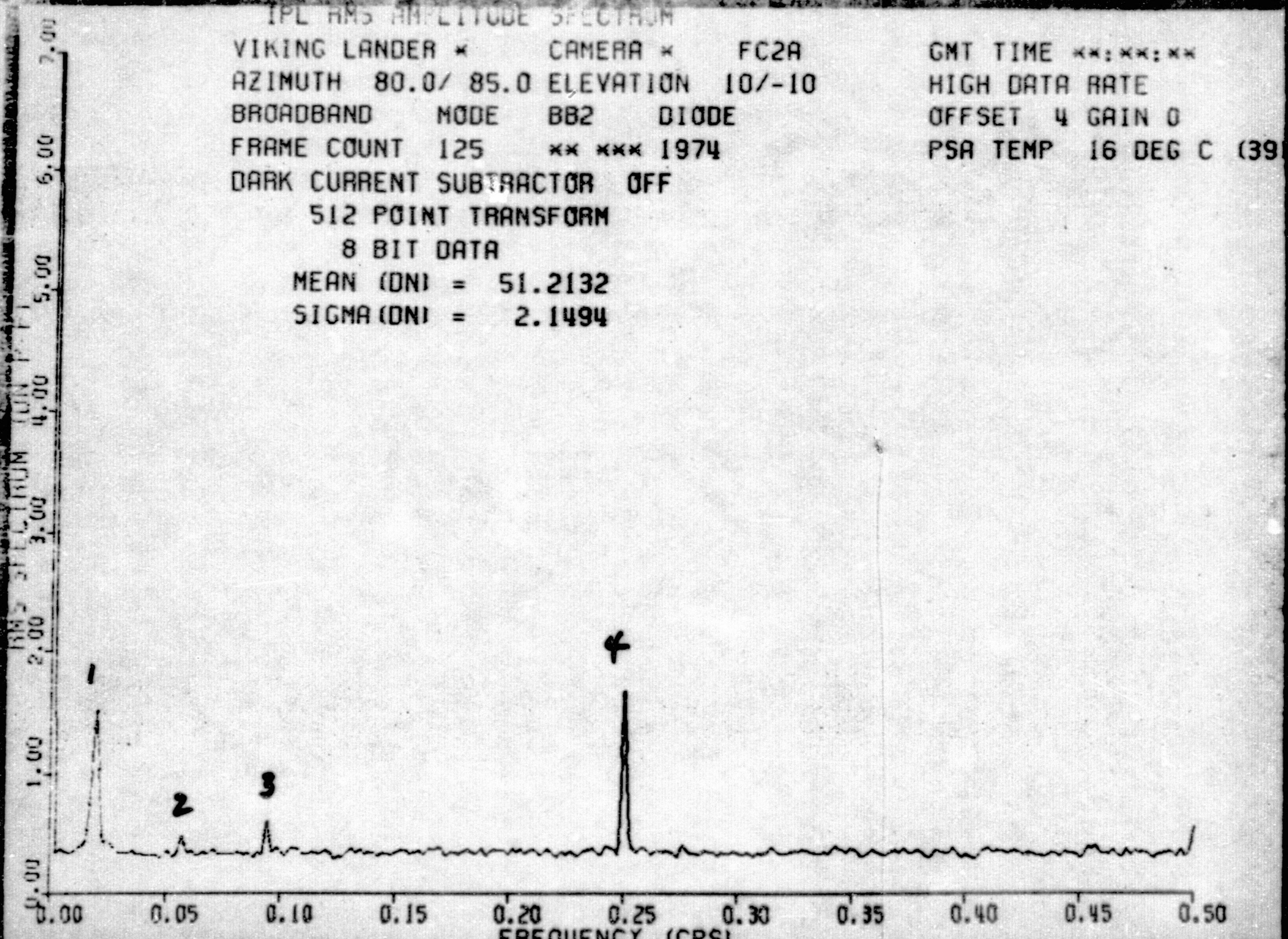

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA - FC2A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR2 DIODE
FRAME COUNT 29 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.1621
SIGMA(DN) = 2.0734
GMT TIME
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 35 DEG C
RMS SPECTRUM (DN P-P)
FREQUENCY (CPS)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
1
2
3
4
5
6
7
8

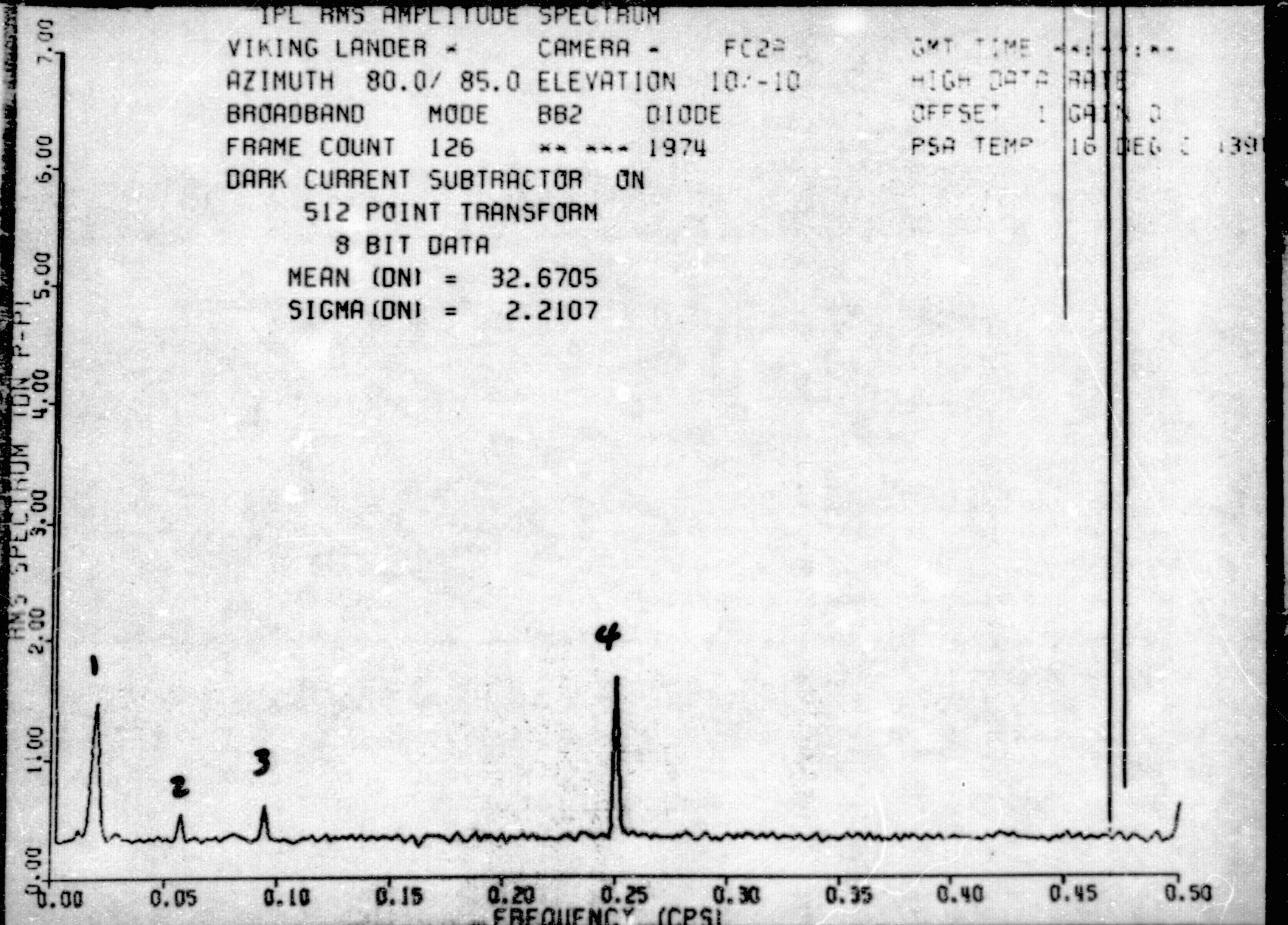

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-29
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
IR COLOR
MODE IR3
DIODE
OFFSET 1 GAIN 1
FRAME COUNT 29
** *** 19**
PSA TEMP 35 DEG C (49
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 13.8934
SIGMA(DN) = 1.2116
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

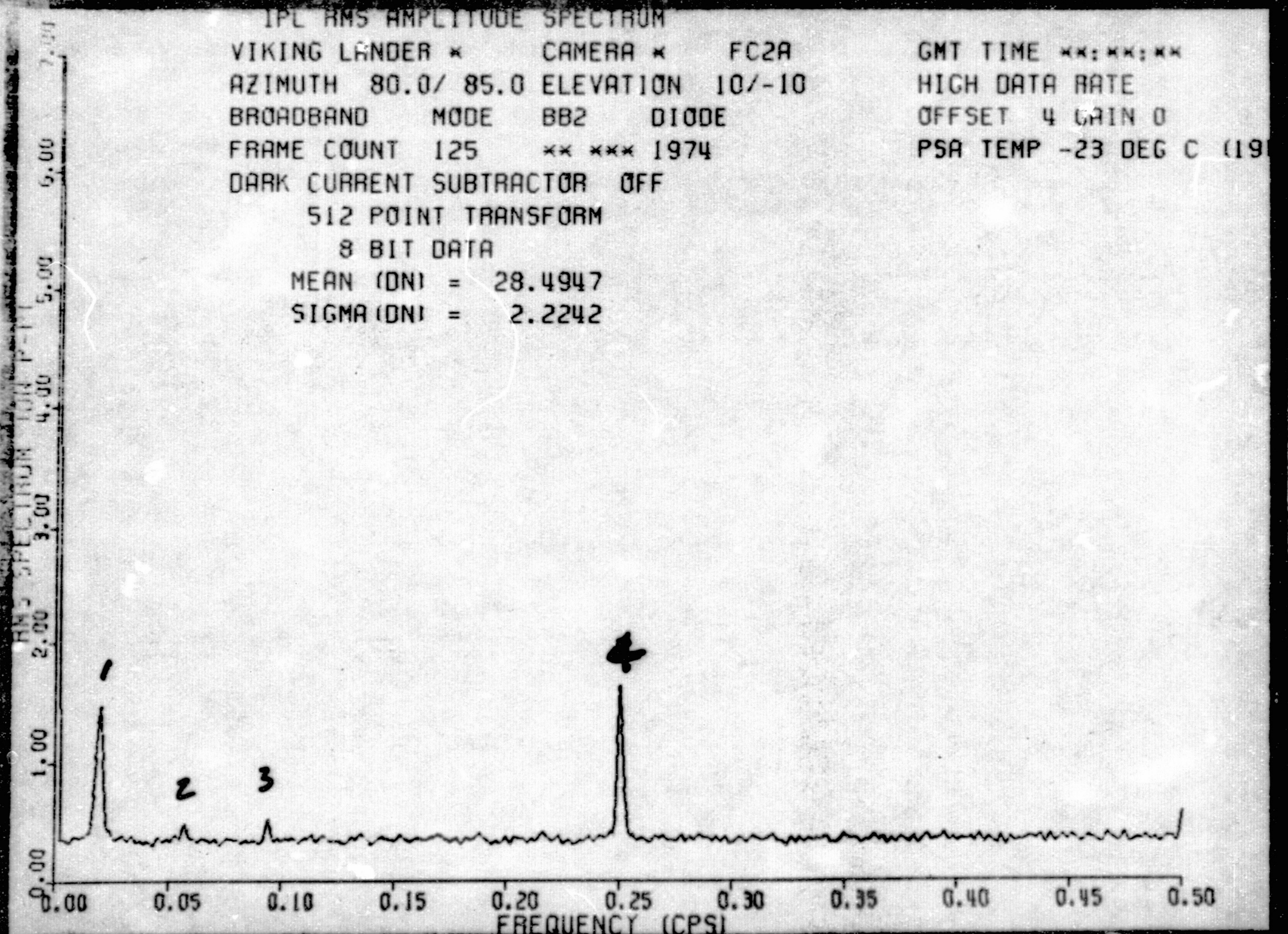

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER - CAMERA - FC2A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
IR COLOR MODE IR1 DIODE
OFFSET 5 GAIN 1
FRAME COUNT 30 ** *** 1974
PSA TEMP 35 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 35.0766
SIGMA(DN) = 1.3600
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
5
6
7
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC2A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR2 DIODE
FRAME COUNT 30 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 23.1348
SIGMA (DN) = 1.8404
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 35 DEG C
1
2
3
4
5
6
7
8
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
RMS SPECTRUM (DN P-P)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

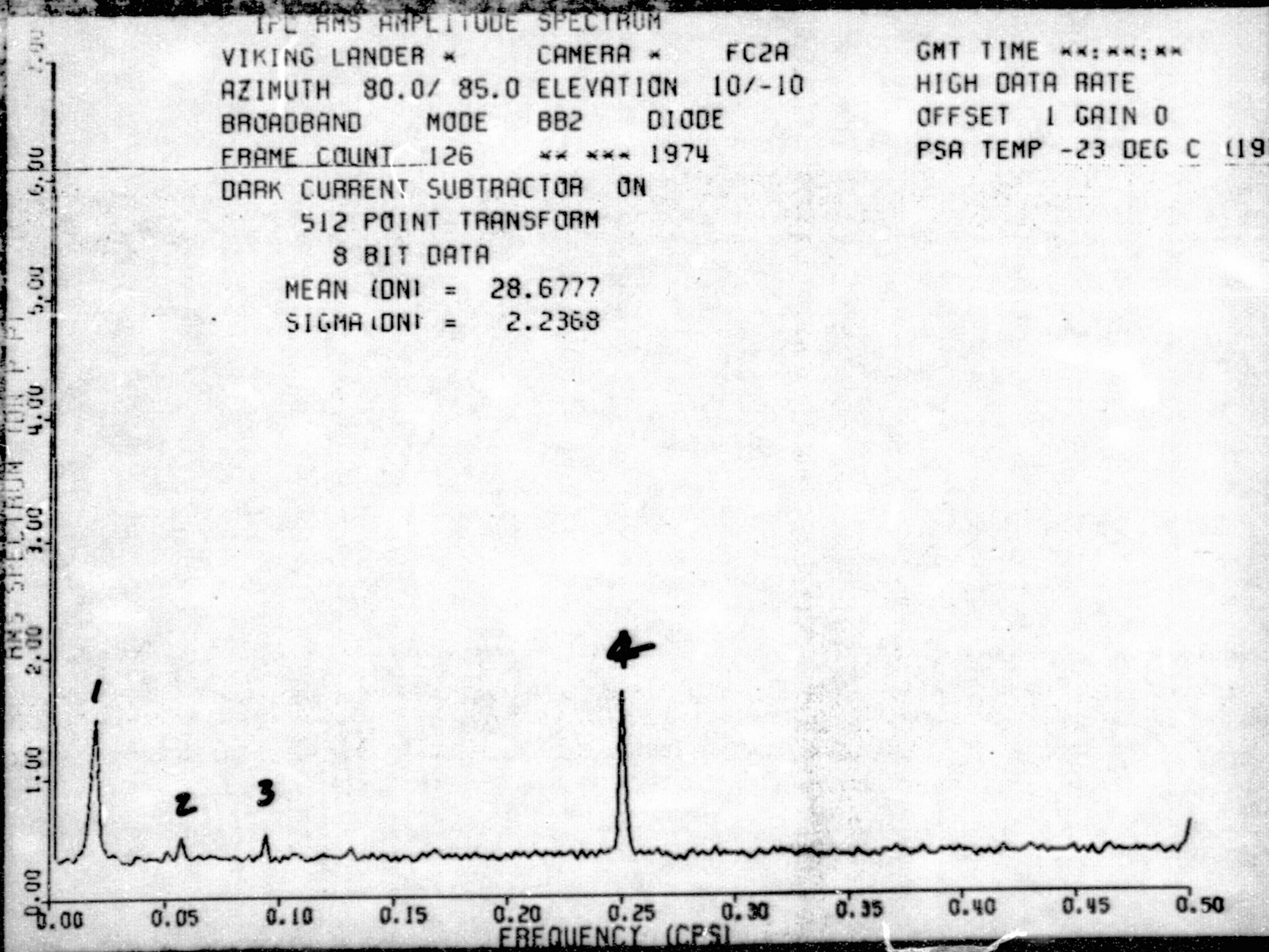

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER ×
CAMERA ×
FC-2A
GMT TIME ××:××:××
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
IR COLOR
MODE IR3
DIODE
OFFSET 5 GAIN 1
FRAME COUNT 30
×× ××× 1974
PSA TEMP 35 DEG. C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 17.3419
SIGMA (DN) = 1.1088
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
1
2
3
4
5
6

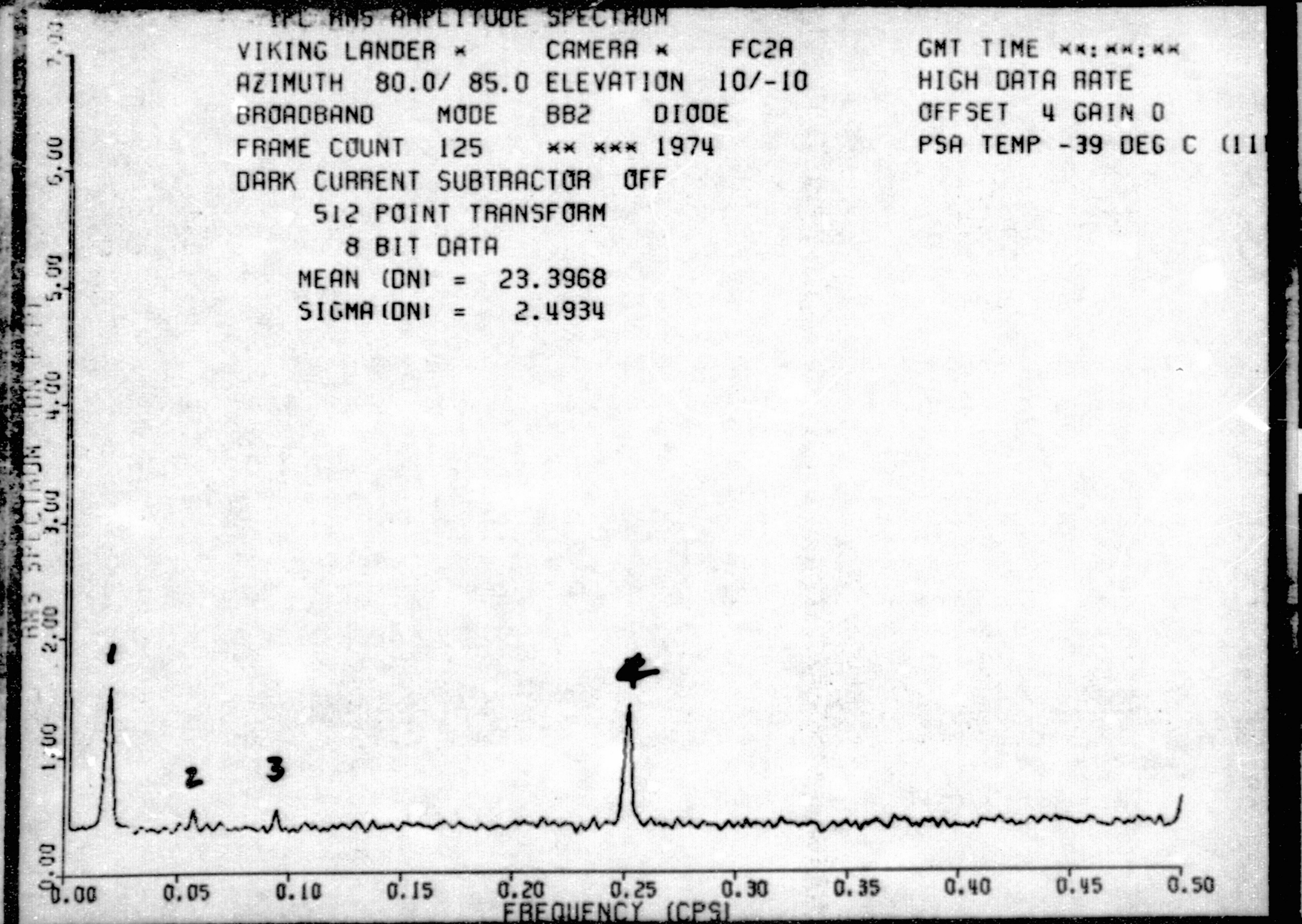

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC2A
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0
ELEVATION 10/-10
HIGH DATA RATE
BROADBAND
MODE
BB2
DIODE
OFFSET 4 GAIN 0
FRAME COUNT 125
** *** 1974
PSA TEMP 16 DEG C (39
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 51.2132
SIGMA(DN) = 2.1494
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

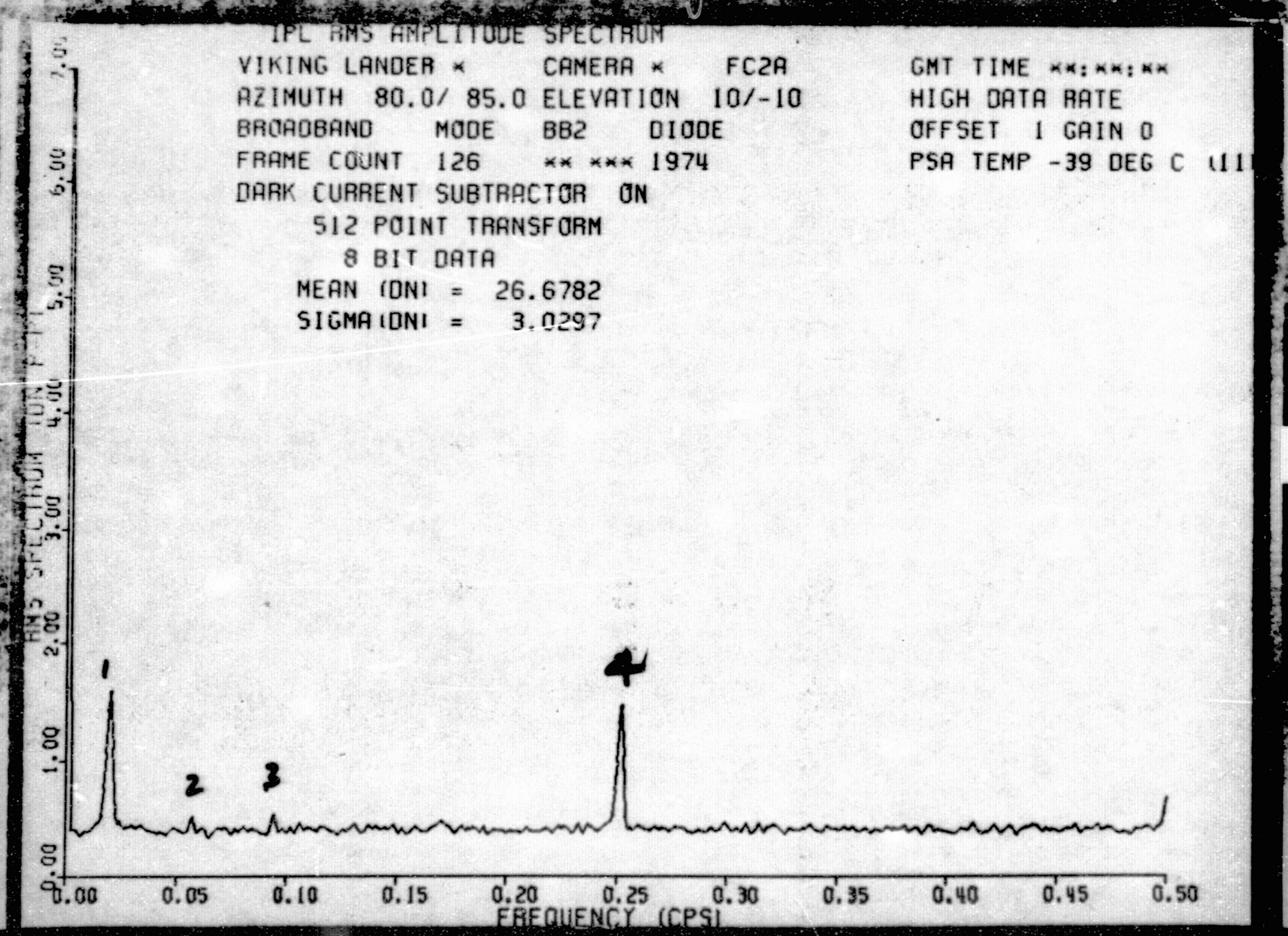

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA -
FC2P
AZIMUTH 80.0/ 85.0
ELEVATION
BROADBAND
MODE
BB2
DIODE
FRAME COUNT 126
** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 32.6705
SIGMA(DN) = 2.2107
HIGH DATA RATE
PSA TEMP
16
1
2
3
4
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
RMS SPECTRUM (DN P-P)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC2A
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 4 GAIN 0
FRAME COUNT 125 ** *** 1974
PSA TEMP -23 DEG C (19
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 28.4947
SIGMA(DN) = 2.2242
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IFC RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC2A
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 126 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 28.6777
SIGMA (DN) = 2.2368
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 0
PSA TEMP -23 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
1
2
3
4
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC2A
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 4 GAIN 0
FRAME COUNT 125 ** *** 1974
PSA TEMP -39 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 23.3968
SIGMA(DN) = 2.4934
1
2
3
4
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC2A
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
HIGH DATA RATE
BROADBAND MODE BB2 DIODE
OFFSET 1 GAIN 0
FRAME COUNT 126 ** *** 1974
PSA TEMP -39 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 26.6782
SIGMA(DN) = 3.0297
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
1
2
3
4
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM　　　　　　　　**DATE:** 12/1/74

CALIBRATION RUN POINT SPREAD FUNCTION, FC-2A CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Listings of the pixel matrix of an area around the illuminated pin hole target.

Two listings for each of the Broadband, Visual Color and IR diodes are included, with the channel and gain setting noted. Offset does not change.

Results Summary attached.

TEST DESCRIPTION The 0.150" pin hole target was scanned at Low and High gain setting for each diode. Target distance = 2.62 meters Offset = 1 for all frames.

DATA PROCESSING DESCRIPTION 30x20 pixel listings were generated for each frame centered on image of pinhole.

ANALYST David S. Atwood

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

The test results indicate a reasonable point spread function for each diode tested in the FC-2A camera. Some of the point spread functions still tend to elongate in the sample (elevation) direction.

V AG LANCER *   CAMERA *   FC2A   TIME **C**C**   C
DARK CURRENT SUBTRACTOR CN   L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	1	1	5	8	3	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	1	1	3	23	36	16	2	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	3	21	33	13	1	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	3	6	2	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

FRAME=1 BB1 GAIN=5

651

VIK LANCER * CAMERA * FC2A GMT ME **C**C** C
DARK CURRENT SUBTRACTOR CN L

652

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269
50	4	4	4	4	4	5	5	4	5	4	4	4	4	4	5	5	5	4	4	5
51	4	4	4	4	4	4	4	4	4	4	4	4	3	4	5	5	5	5	4	5
52	4	4	4	4	3	4	4	3	4	4	4	4	3	4	4	4	4	5	4	4
53	4	4	4	4	4	5	5	4	5	4	4	4	4	4	4	4	4	4	4	4
54	5	5	4	4	5	5	5	4	5	4	4	4	4	4	4	4	4	5	4	4
55	4	3	4	4	4	5	4	5	5	5	4	4	4	5	5	4	5	4	5	4
56	3	3	4	4	4	5	5	4	4	4	4	4	3	4	5	4	5	4	5	4
57	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	5	4	4	5
58	4	4	4	4	4	4	5	5	4	4	4	4	4	4	3	4	4	4	4	4
59	4	4	5	5	5	5	5	4	4	5	4	4	4	4	4	4	5	5	5	4
60	4	3	4	4	5	5	5	5	5	5	4	4	5	5	5	5	5	5	4	4
61	3	3	4	4	4	5	6	6	5	5	4	4	4	4	4	4	5	4	5	5
62	4	4	4	4	5	7	21	35	15	4	4	4	4	4	4	4	4	5	4	4
63	4	3	4	5	5	14	62	62	62	7	4	4	4	3	4	3	4	3	4	4
64	5	4	5	5	5	15	62	62	54	7	4	4	4	4	4	4	5	4	4	4
65	3	3	3	4	4	6	17	24	9	5	4	4	4	4	4	4	4	4	4	4
66	3	3	3	4	4	4	5	4	4	3	3	3	3	3	4	4	5	4	4	4
67	3	3	3	3	3	3	3	4	4	4	3	3	3	4	4	4	4	4	4	3
68	3	3	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	3	4	4
69	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	4	4	4	4
70	3	3	3	5	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4
71	3	3	3	4	4	4	4	4	4	4	3	3	3	3	4	4	5	4	4	4
72	3	3	3	3	3	3	3	3	4	3	3	3	3	3	4	3	4	4	4	3
73	4	3	3	4	4	4	4	4	4	3	3	3	4	3	3	3	3	3	3	4
74	4	4	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4
75	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4
76	3	3	3	3	3	4	4	4	4	3	4	4	3	3	3	4	4	4	4	4
77	3	3	3	3	3	3	3	3	4	3	3	3	3	3	4	4	4	4	4	4
78	4	3	4	4	3	3	4	4	4	3	3	3	4	4	3	3	3	3	3	4
79	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	4	4	4	4	4

652

FRAME 2 BB1 GAIN = 3

VI[illegible]G LANDER * CAMERA * FC2A G[illegible] TIME **0**0** C
DARK CURRENT SUBTRACTOR ON L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	2	5	5	0	0	0	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	3	44	45	4	0	0	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	2	35	30	1	0	0	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

653

FRAME 3 BB2 GAIN = 5

65

VI G LANCER * CAMERA * FC2A GM TIME **0**0** C
DARK CURRENT SUBTRACTCR CN L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269
50	2	2	3	3	3	3	4	3	3	2	2	3	3	3	2	2	3	3	3	3
51	3	3	4	4	4	3	3	3	3	3	2	2	2	3	3	3	3	3	4	3
52	3	2	2	3	3	4	3	3	4	4	3	3	3	3	4	3	4	3	3	3
53	2	2	3	3	3	3	3	3	3	3	3	2	2	3	3	4	3	3	4	4
54	2	3	2	2	2	3	2	2	2	3	2	2	3	3	3	3	4	3	4	3
55	3	2	3	3	3	3	3	4	3	2	2	3	2	2	3	2	3	2	2	3
56	3	4	3	4	3	3	4	3	3	3	2	2	2	3	3	3	3	3	3	3
57	3	3	2	3	3	4	3	3	3	3	3	4	3	3	4	4	4	3	3	4
58	2	2	3	3	2	3	3	3	3	3	2	3	2	3	3	3	3	3	3	4
59	3	3	3	2	2	2	3	3	3	2	2	2	2	3	3	3	3	4	3	3
60	3	3	3	3	3	3	3	4	3	2	2	3	2	2	2	2	3	2	2	3
61	3	3	3	3	3	4	6	5	3	4	2	3	2	3	3	3	3	3	4	2
62	3	2	3	4	4	9	22	2C	5	4	3	3	3	4	3	3	3	3	3	3
63	2	2	3	3	4	17	62	62	12	3	2	2	3	3	3	3	3	3	3	4
64	2	2	3	3	3	7	62	62	6	2	2	2	2	3	2	3	3	3	3	3
65	3	3	4	4	4	5	6	6	5	4	2	4	3	3	3	3	4	3	3	3
66	4	4	4	4	4	4	5	4	4	4	3	4	4	4	4	4	4	4	4	4
67	3	3	3	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
68	3	3	3	4	4	4	4	4	4	4	4	3	3	3	4	4	4	4	4	4
69	3	4	3	4	3	3	3	3	3	3	3	3	3	4	4	4	4	4	4	4
70	4	3	4	4	4	4	4	4	4	4	2	3	3	3	3	3	3	4	3	4
71	4	4	4	4	5	4	4	4	4	4	3	4	3	4	4	4	5	3	4	4
72	3	3	3	4	4	4	4	3	4	5	4	4	4	4	4	4	4	4	4	4
73	3	3	3	4	3	4	4	4	4	4	3	3	3	3	4	4	4	3	4	4
74	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4
75	4	3	4	3	3	5	4	4	4	3	3	3	3	3	3	3	3	2	3	4
76	4	3	4	4	4	4	4	4	4	4	3	3	4	3	3	4	4	4	4	4
77	3	2	3	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4
78	3	3	3	4	3	4	4	3	4	4	3	3	3	3	4	4	5	4	4	4
79	3	3	3	3	3	3	3	3	3	3	2	3	3	4	3	3	4	4	4	4

654

FRAME 4 BB2 GAIN = 3

VI G LANCER * CAMERA * FC2A GM TIME **0**0** C
DARK CURRENT SUBTRACTOR ON L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	0	0	0	0	0	0	0	0	0	0	3	3	1	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	4	16	19	6	1	0	0	0	0	0	0
63	0	0	0	0	0	0	0	0	1	7	27	32	10	1	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0	3	16	18	6	1	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

655

FRAME 5 BB3 GAIN 5

VI[illegible]G LANCER * CAMERA * FC2A GM[illegible]IME **C**C** C
DARK CURRENT SUBTRACTOR CN L

SAMP / LINE	250		252		254		256		258		26C		262		264		266		268	
50	4	4	4	4	3	3	4	4	4	4	3	3	3	3	3	3	3	3	4	4
51	4	3	3	3	3	4	4	4	5	4	4	4	4	4	4	3	4	4	4	4
52	3	3	2	3	3	3	4	3	4	3	3	3	3	3	3	3	4	4	4	4
53	3	3	3	3	2	2	3	3	3	3	3	3	2	3	3	3	3	3	4	4
54	3	3	3	3	3	3	3	4	4	4	3	3	2	3	3	3	3	3	3	3
55	4	4	4	4	3	3	4	5	4	4	3	3	3	3	3	3	3	3	4	4
56	3	3	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	3	4	4
57	3	3	3	3	3	3	3	4	4	5	3	3	3	3	3	3	4	4	4	4
58	3	3	3	3	2	2	3	3	3	3	3	3	2	3	3	3	3	3	3	4
59	3	3	3	3	3	3	3	3	4	4	3	3	3	3	3	3	3	3	2	3
60	4	4	4	4	4	3	4	4	5	4	4	4	4	3	3	3	3	3	3	4
61	3	3	3	3	3	3	4	4	4	6	13	15	7	5	4	4	3	4	5	4
62	3	2	3	3	3	3	4	3	5	16	62	62	27	5	3	3	4	4	4	4
63	3	3	2	3	2	3	3	3	4	24	62	62	45	5	3	3	3	3	3	4
64	3	3	3	3	3	3	4	4	5	16	62	62	21	4	4	3	2	3	3	3
65	4	4	3	4	3	3	4	4	4	5	1C	12	5	4	3	3	3	3	3	4
66	3	3	3	3	2	3	3	4	4	4	4	4	4	4	4	4	3	3	4	4
67	3	2	2	2	2	3	3	3	4	4	4	3	3	3	3	3	4	3	4	4
68	3	3	2	3	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	4
69	3	3	3	3	3	3	3	4	4	4	4	3	3	3	3	3	2	2	3	3
70	4	4	3	3	3	3	4	4	4	4	3	3	3	3	3	3	3	3	4	4
71	3	3	3	3	3	3	3	4	4	4	4	4	3	5	4	4	3	4	4	4
72	3	3	3	3	2	3	3	3	4	4	3	3	3	3	3	2	4	3	4	4
73	4	3	2	3	2	2	2	3	3	3	3	2	2	3	2	3	3	3	3	4
74	3	3	3	3	3	3	3	3	4	3	3	3	3	2	3	3	2	2	3	3
75	4	4	4	3	3	4	4	4	4	4	3	3	3	3	3	3	3	3	3	4
76	3	3	3	3	3	3	3	4	4	3	4	4	3	4	4	3	4	4	4	4
77	3	2	3	3	2	3	3	4	4	3	3	3	3	3	3	2	3	4	4	4
78	3	3	2	3	2	3	2	2	3	3	2	2	3	3	2	2	3	3	3	4
79	3	3	3	3	2	3	3	3	4	4	3	3	3	3	3	3	3	2	2	3

656

FRAME 6 BB3 GAIN = 3

657

VI G LANCER * CAMERA * FC2A GM TIME **C**0** C
DARK CURRENT SUBTRACTOR CN L

LINE \ SAMP	250		252		254		256		258		26C		262		264		266		268	
50	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	C	C	C	C	C	C	0	C	0	0	0	0	0	0	0
52	0	0	0	C	0	C	0	C	C	C	0	0	0	0	0	C	0	0	0	0
53	0	0	0	0	0	C	0	C	C	C	C	0	0	0	0	0	0	0	0	0
54	0	0	0	C	0	0	C	C	C	C	C	0	C	C	0	0	0	0	0	0
55	0	0	0	0	C	C	0	C	C	C	0	0	0	C	0	0	0	0	0	0
56	0	0	0	0	0	C	0	C	C	C	0	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0
58	0	0	0	0	0	C	C	C	C	C	C	0	C	C	0	0	0	0	0	0
59	0	0	0	0	0	0	0	C	C	1	1	1	C	C	0	0	0	0	0	0
60	0	0	0	0	0	C	C	C	2	4	6	5	2	0	0	0	0	0	0	0
61	0	0	0	0	0	C	C	1	4	1C	12	10	4	0	0	0	0	0	0	0
62	0	0	0	0	0	C	C	1	6	12	13	13	7	1	0	0	0	0	0	0
63	0	0	0	0	0	0	0	1	4	1C	13	12	6	1	0	0	0	0	0	0
64	0	0	0	0	0	0	C	C	2	6	8	6	3	0	0	0	0	0	0	0
65	0	0	0	0	0	C	0	C	C	1	2	2	0	0	0	0	0	0	0	0
66	0	0	0	0	0	C	C	C	C	C	0	0	C	C	0	0	0	0	0	0
67	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	C	C	C	0	0	C	0	0	0	0	0	0	0
69	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	C	C	C	C	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	C	C	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	C	C	C	C	C	C	0	C	0	0	0	0	0	0	0
74	0	0	0	C	C	C	C	C	C	C	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	C	C	C	C	C	0	C	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	C	C	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	C	0	0	C	C	C	0	0	0	0	0	0	0	0	0	0	0

657

FRAME 7 BB4 GAIN = 5

VI[illegible]G LANDER * CAMERA * FC2A GM[illegible]TIME **0**0** C
DAR[illegible] CURRENT SUBTRACTOR ON L

SAMP / LINE	250		252		254		256		258		260		262		264		266		268	
50	4	3	4	3	3	4	4	4	4	4	4	3	3	3	4	3	3	4	4	4
51	4	3	3	3	4	4	4	3	4	4	4	4	4	4	4	3	4	4	4	4
52	3	3	3	3	3	3	3	4	4	4	3	3	3	3	3	4	4	4	4	4
53	3	3	4	3	2	3	3	3	4	3	3	3	3	3	3	3	3	4	4	4
54	3	3	3	3	3	3	4	4	4	4	3	3	3	4	3	3	3	3	3	3
55	4	4	4	4	3	4	4	4	4	4	3	4	3	3	3	3	3	4	4	4
56	4	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
57	4	3	3	3	4	3	3	4	4	4	4	4	4	3	3	3	4	4	3	4
58	3	3	3	4	3	3	3	3	3	3	4	4	3	3	4	3	3	3	3	4
59	4	3	3	3	4	3	3	4	5	6	6	5	4	4	4	3	3	3	3	4
60	4	4	4	4	5	4	4	5	9	20	26	19	7	4	4	4	3	3	4	4
61	4	3	3	3	3	4	4	6	19	40	50	42	19	6	4	4	4	4	4	4
62	3	3	3	3	3	3	3	7	26	49	54	50	25	6	3	3	4	3	4	4
63	4	3	3	4	3	3	3	5	18	41	53	47	23	5	4	4	4	3	4	4
64	4	4	3	4	3	4	3	4	9	22	32	26	11	4	3	3	3	3	3	3
65	4	4	4	4	4	3	4	4	5	7	9	7	4	3	4	4	3	3	3	4
66	3	4	3	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
67	3	3	3	3	3	3	3	3	4	4	4	4	5	3	3	3	4	4	4	4
68	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4
69	4	4	3	3	3	3	3	3	4	4	4	4	3	3	3	3	3	3	3	3
70	4	4	4	4	3	3	4	4	4	4	4	4	3	3	3	3	4	3	3	4
71	3	3	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
72	4	3	3	3	3	3	3	3	4	4	3	4	4	3	3	3	3	4	4	4
73	4	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	4	3	3	4
74	4	3	4	3	3	3	3	3	4	4	4	4	3	3	4	3	3	3	3	3
75	4	4	4	4	4	4	4	4	4	4	3	4	4	3	3	3	3	3	3	4
76	3	4	3	4	3	3	3	4	4	4	4	4	4	4	4	4	4	3	4	4
77	4	3	3	3	3	3	3	3	4	4	4	4	4	4	3	3	3	4	4	4
78	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	3	3	3
79	4	4	4	3	3	3	3	3	4	4	4	4	3	3	4	3	3	3	3	3

658

FRAME 8 BB4 GAIN = 3

DARK CURRENT SUBTRACTOR ON L

VIKIN NCEF * CAMERA * FC2A GMT **C**C** C
DARK C FENT SUBTRACTOR ON L

LINE	SAMP 247		249		251		253		255		257		259		261		263		265	
9	1	1	1	2	2	2	2	1	2	2	1	1	2	2	2	2	2	2	1	1
1C	2	1	1	2	2	2	1	2	2	1	1	1	1	2	2	2	2	2	2	2
11	2	1	1	1	1	1	2	1	1	1	1	1	1	1	2	2	1	2	2	1
12	2	1	1	2	2	2	2	1	2	1	1	1	2	1	1	1	1	2	0	1
13	2	2	1	1	1	1	2	2	2	1	1	C	2	1	1	2	2	2	2	1
14	1	1	1	2	1	2	2	1	2	2	2	1	1	1	2	1	2	2	2	2
15	1	1	1	2	1	2	2	1	2	1	1	1	2	1	1	2	2	2	2	2
16	1	1	1	1	1	2	2	1	1	1	1	1	1	1	2	2	2	2	1	2
17	1	1	2	1	2	2	2	1	2	1	1	1	1	1	1	1	1	1	1	1
18	2	1	1	2	1	2	2	1	2	2	1	2	1	2	C	2	2	2	2	2
19	1	2	1	1	1	2	2	1	2	2	2	2	2	3	2	2	2	2	1	2
2C	1	1	1	1	2	2	2	1	2	2	1	1	1	C	1	1	2	2	2	2
21	1	1	3	1	1	1	2	1	1	2	2	1	1	1	2	1	2	2	2	1
22	1	1	1	1	1	2	2	1	2	2	16	5	1	1	1	1	1	1	1	1
23	2	2	1	2	2	2	1	2	1	2	5	3	1	2	1	1	2	2	1	2
24	2	0	0	1	2	3	2	1	1	2	2	2	1	1	2	2	2	2	2	2
25	1	1	1	1	1	C	1	2	2	2	1	1	1	1	1	2	2	2	1	2
26	1	1	1	1	1	1	1	1	2	1	1	3	1	1	1	2	2	1	2	2
27	1	1	1	1	1	1	2	2	2	1	3	1	C	1	1	1	1	1	3	1
28	2	2	2	2	1	2	2	1	2	2	1	2	1	1	1	1	2	2	2	2
29	2	1	1	1	1	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2
3C	1	1	1	1	1	1	2	1	1	2	2	1	1	C	1	1	2	2	2	3
31	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	2
32	2	1	1	2	1	1	2	2	2	2	2	1	1	1	2	2	1	1	1	3
33	2	2	2	1	2	2	2	2	2	2	2	1	1	1	1	2	1	2	2	2
34	2	2	1	1	1	2	2	1	2	1	2	2	2	1	1	1	2	2	2	2
35	1	1	1	1	1	2	1	2	1	2	1	2	2	1	1	1	2	2	2	1
36	2	1	1	1	2	2	1	1	1	1	1	2	1	1	1	1	1	2	2	1
37	2	2	1	2	2	1	1	1	2	1	1	2	3	1	1	1	2	0	1	2
38	2	2	2	2	2	2	2	1	2	2	1	1	1	1	1	1	1	1	1	2

FRAME 9 BLUE DIODE GAIN = 4

659

VIKI[...] LANDER #   CAMERA #   FC2A   CNT [...]E **0**0**   C
DARK CURRENT SUBTRACTOR ON   L

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	10	8	8	8	8	9	8	8	8	8	8	8	11	8	7	7	7	6	8	7
10	7	9	8	8	8	7	9	7	7	9	8	9	8	8	9	9	7	9	9	8
11	6	9	7	6	6	7	7	6	9	9	8	6	7	8	8	7	7	8	7	8
12	9	8	9	8	7	7	7	7	8	6	5	9	7	7	8	7	7	8	6	7
13	7	9	9	9	6	7	8	7	8	6	8	9	10	8	9	6	6	7	8	8
14	8	9	9	9	8	9	10	7	9	8	7	10	8	9	7	6	8	7	7	8
15	8	9	8	10	7	8	8	6	7	7	7	10	9	9	10	9	9	8	8	9
16	7	8	9	7	8	6	7	7	6	6	8	8	8	8	8	8	8	8	6	7
17	9	8	7	8	8	8	8	7	6	7	6	7	8	8	8	6	8	7	5	6
18	9	8	8	8	8	7	8	8	6	7	8	8	8	9	9	8	6	5	7	7
19	8	9	8	8	9	8	9	7	8	9	6	9	10	8	8	8	8	7	7	8
20	8	8	7	7	8	7	7	8	7	7	6	9	8	9	9	9	8	10	8	9
21	8	6	6	7	8	8	8	7	7	7	7	9	8	9	9	7	7	7	8	8
22	9	9	8	8	9	9	6	6	8	8	62	20	7	8	7	7	6	8	7	7
23	8	8	8	9	9	7	8	7	8	8	28	15	9	8	8	8	8	7	8	7
24	8	9	8	7	7	9	9	8	7	8	10	9	8	10	10	8	7	8	7	9
25	9	8	8	10	8	8	8	7	8	7	7	9	9	8	7	9	10	9	9	9
26	8	5	5	7	7	6	9	8	7	6	7	9	7	8	7	8	7	7	8	7
27	6	7	7	9	9	8	8	6	7	8	8	7	7	7	7	7	9	9	6	7
28	9	8	9	8	8	8	8	9	8	7	7	7	9	8	9	9	9	8	7	7
29	7	8	9	9	9	9	9	8	9	8	9	9	9	9	10	7	7	8	8	8
30	9	9	6	8	9	8	9	7	8	7	7	7	8	9	9	8	8	8	8	8
31	7	7	6	7	7	8	7	6	7	8	7	9	8	8	8	8	8	3	8	8
32	7	7	8	8	8	9	8	7	7	7	8	8	6	7	6	7	8	9	8	7
33	10	9	8	9	9	9	8	8	8	7	6	7	8	7	9	8	8	8	8	8
34	7	9	9	10	8	8	9	10	9	8	8	9	9	7	9	10	8	8	8	7
35	8	9	8	8	9	9	8	8	7	8	6	7	8	9	8	7	8	9	9	9
36	7	7	5	8	8	8	8	8	6	7	7	8	9	6	8	7	9	8	8	7
37	8	8	8	8	7	9	9	7	6	6	8	8	6	7	7	6	7	8	8	7
38	9	9	7	8	9	9	9	7	7	9	8	7	8	8	9	9	8	9	8	7

FRAME 10   BLUE DIODE   GAIN = 2

660

VIKING NCEF * CAMERA * FC2A CMT 1 **C**C** C
DARK CURRENT SUBTRACTOR ON L

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
10	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	2	1	1	2	2	1	2	1	2	2	2	2
12	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
16	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	1	2	2	2	2
17	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	1	2	2	2
22	2	2	2	2	2	2	2	1	2	2	2	7	2	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2
24	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
25	2	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	2	2
26	2	2	2	2	2	2	2	2	2	1	1	2	1	2	2	2	1	2	2	2
27	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
29	2	2	2	2	2	2	2	1	1	1	2	2	2	2	2	2	2	2	2	2
30	2	2	1	2	2	2	2	2	1	2	2	2	3	2	2	2	2	2	2	1
31	2	2	2	2	2	2	1	2	1	1	1	2	2	1	2	2	3	1	2	1
32	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
33	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
34	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
35	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
36	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	1	2
37	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	1	1	2
38	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

FRAME 11 GREEN DIODE GAIN=4

VIKING LANDER * CAMERA * FC2A CNT **C**C** C
DARK CURRENT SUBTRACTOR ON L

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	5	5	4	6	4	7	8	6	6	7	6	7	5	5	5	4	7	7	7	7
10	6	5	5	6	5	4	5	7	6	5	5	7	5	5	5	6	5	7	6	8
11	7	7	5	5	7	5	6	6	7	7	6	7	4	5	6	4	5	6	5	6
12	9	8	6	6	6	8	8	6	7	7	6	6	6	5	5	5	6	7	6	7
13	6	6	5	4	4	5	8	8	7	6	8	9	8	6	7	6	7	8	8	7
14	6	5	4	6	5	6	7	6	7	8	6	7	6	5	5	5	6	8	9	7
15	7	5	4	5	4	5	4	5	6	6	4	7	5	5	6	5	7	6	6	7
16	5	7	5	6	4	6	7	6	6	7	6	7	6	4	5	5	5	4	5	6
17	8	8	7	7	6	7	8	7	7	8	6	7	5	6	5	5	6	7	6	7
18	7	6	4	5	5	5	7	7	7	5	7	7	7	7	6	7	6	7	8	9
19	6	5	4	6	5	6	7	7	6	7	6	8	7	5	6	4	5	7	7	7
20	8	6	3	5	5	6	5	4	5	5	6	6	6	5	5	4	6	8	6	7
21	7	7	5	6	6	6	6	5	7	6	7	7	6	4	6	5	4	5	7	6
22	8	8	8	7	7	6	7	7	8	10	62	24	6	6	5	5	6	5	7	7
23	9	7	5	6	6	6	7	7	8	8	25	11	9	7	7	7	7	7	7	8
24	6	6	4	6	5	6	8	6	6	7	6	7	7	4	4	4	4	8	7	8
25	8	6	5	5	6	6	5	4	5	5	6	6	5	6	5	4	6	7	7	6
26	7	7	4	6	5	6	6	6	7	8	8	7	4	4	4	5	6	5	4	6
27	8	6	7	8	6	7	8	7	6	7	7	7	6	6	6	4	5	6	7	7
28	7	7	4	6	5	5	6	7	7	8	6	8	9	8	6	6	7	7	7	7
29	6	5	4	5	4	5	6	6	5	7	6	8	7	5	5	5	5	6	7	8
30	8	6	5	4	5	5	4	5	5	5	5	7	7	7	5	4	6	6	7	6
31	8	6	5	6	5	6	7	5	7	7	6	8	6	6	4	4	6	6	4	6
32	7	7	7	8	6	7	7	7	7	6	6	8	6	6	7	6	6	6	7	7
33	7	8	6	5	5	5	5	6	7	7	6	9	7	8	7	6	8	8	6	8
34	5	5	4	5	5	5	5	6	6	6	7	7	6	7	6	6	5	5	6	7
35	7	8	5	5	5	5	7	4	5	5	5	5	6	5	5	5	5	7	6	7
36	8	7	5	5	5	7	7	6	5	7	6	8	7	5	5	5	7	6	3	6
37	7	7	8	7	7	6	7	7	8	8	7	7	7	6	5	5	6	6	4	6
38	8	8	6	6	5	5	6	5	5	7	7	6	8	8	8	7	6	7	8	6

662

FRAME 12 GREEN DIODE GAIN = 2

VIKIN… LANDER * CAMERA * FC2A CNT … **C**C** C
DARK CURRENT SUBTRACTOR ON L

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
10	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
11	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
14	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2
16	3	2	1	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
17	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	1
18	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
20	2	2	2	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2
21	1	1	3	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
22	2	2	2	2	2	2	2	2	2	2	31	6	2	2	2	1	2	2	2	1
23	2	2	2	2	2	2	2	2	2	2	6	2	2	2	2	2	2	2	2	2
24	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
25	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
26	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
27	2	2	2	2	2	2	2	2	1	2	2	2	1	2	2	2	2	2	2	1
28	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
30	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
31	2	2	1	2	2	2	2	1	1	2	1	2	2	2	2	2	2	2	2	3
32	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2
33	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
34	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
35	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
36	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
38	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1

FRAME 13 RED DIODE GAIN = 4

VIKIN[illegible]ANDER *   CAMERA *   FC2A   GMT T[illegible] **C**C**   C
DARK CURRENT SUBTRACTOR ON   L

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	8	7	7	7	7	7	8	7	7	7	7	8	7	7	7	6	7	7	7	8
10	8	8	8	7	7	7	8	7	7	8	8	8	7	7	7	7	7	7	7	7
11	8	8	8	8	8	8	8	7	8	8	8	8	8	8	8	7	7	8	7	8
12	8	7	8	7	7	7	7	7	8	8	7	8	8	8	8	8	8	8	8	8
13	7	8	8	7	7	7	8	7	7	7	8	8	7	7	8	7	7	7	8	8
14	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
15	8	8	8	8	7	7	7	7	7	7	8	8	8	7	7	7	7	7	7	7
16	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	8	7	7
17	8	7	8	8	7	7	7	7	8	8	7	8	8	8	8	8	8	8	8	8
18	7	7	7	7	7	7	8	7	7	7	8	8	8	8	9	7	7	7	8	8
19	8	8	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7	7	7	8
20	8	8	7	8	7	7	7	8	7	7	8	9	8	7	7	7	7	7	7	7
21	8	8	8	8	8	8	8	8	8	8	10	9	8	8	8	7	7	8	8	7
22	8	8	7	8	7	7	7	7	8	11	62	22	8	8	8	8	8	8	7	8
23	8	7	7	7	7	7	7	7	7	9	29	10	8	8	8	7	7	7	7	8
24	8	8	8	7	7	7	8	7	7	7	7	7	7	7	7	7	7	7	7	7
25	8	8	7	8	7	7	7	7	8	7	7	8	8	8	7	7	7	8	7	7
26	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	8	7	7
27	7	8	7	8	8	7	7	6	7	8	8	8	8	8	8	8	8	8	7	8
28	8	7	7	7	7	7	7	7	7	7	7	8	8	7	8	7	7	7	7	7
29	8	8	8	8	7	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7
30	8	8	8	8	7	7	8	7	7	8	7	8	9	8	8	7	7	7	7	7
31	8	8	7	8	8	8	8	8	8	9	8	8	8	8	8	8	7	7	7	7
32	8	8	7	7	7	8	7	7	7	7	8	8	8	8	8	8	8	8	8	8
33	7	7	7	7	7	7	7	7	7	7	7	8	8	7	8	7	7	7	7	7
34	7	8	8	8	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
35	8	8	8	8	8	8	8	7	7	7	7	8	8	8	8	7	8	7	7	7
36	8	8	8	8	8	8	8	8	8	8	7	8	8	8	8	8	8	7	7	7
37	7	8	8	7	7	8	8	7	7	7	8	8	8	8	8	8	8	8	8	8
38	7	7	7	7	7	7	7	7	7	7	7	8	7	8	8	7	8	8	7	7

FRAME 14   RED DIODE   GAIN = 2

664

665

VIKING LANDER * CAMERA * FC2A CNT E **C**C** C
DARK CURRENT SUBTRACTOR ON L

SAMP	247		249		251		253		255		257		259		261		263		265	
LINE																				
9	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	1	2	3	2	2
10	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	1
11	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	1	1	2	1	1	2	2	2	2	2	2	2	2	2	2	2
13	2	2	2	2	2	1	2	1	1	1	2	2	1	2	2	1	2	1	2	2
14	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	1	2	2	1
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	2
16	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
17	2	2	2	2	2	1	2	1	2	2	2	2	2	2	2	2	2	1	2	1
18	2	2	2	2	2	2	2	1	1	1	1	2	1	2	2	1	1	2	3	2
19	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2	2
20	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
21	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
22	1	1	2	2	1	2	2	1	2	2	20	6	2	2	2	2	2	2	2	2
23	2	2	2	2	2	2	2	1	1	2	9	3	2	2	2	1	2	1	2	2
24	2	2	2	2	2	2	2	2	2	2	2.	2	2	2	2	2	2	2	2	2
25	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
26	2	2	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2
27	2	2	1	2	2	1	1	1	1	1	2	2	2	2	2	2	2	2	1	2
28	2	2	2	2	2	2	2	1	1	2	2	1	1	2	2	2	2	1	2	1
29	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
30	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
32	2	1	1	1	2	2	2	1	1	1	1	2	2	2	2	2	2	2	3	1
33	2	2	2	2	3	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
34	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	1
35	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
36	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
38	2	2	2	2	2	2	2	1	1	1	1	2	2	1	2	1	2	2	1	2

FRAME 15 IR1 DIODE GAIN = 4

665

666

VIKIN[illegible]ANDER * CAMERA * FC2A CNT [illegible] **C**C** C
DARK CURRENT SUBTRACTOR ON L

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	6	5	5	6	6	6	7	6	6	7	6	7	7	6	6	6	8	7	6	7
10	6	6	7	7	7	7	8	7	6	6	6	5	6	6	7	6	6	6	6	6
11	7	7	7	7	7	7	7	6	6	6	6	7	6	7	7	6	7	7	6	7
12	6	7	7	8	7	7	8	8	7	7	7	8	7	7	7	7	8	6	6	6
13	7	7	6	7	7	7	7	6	5	7	6	7	7	8	7	8	7	7	7	7
14	7	6	6	6	6	7	6	5	6	6	6	7	8	6	7	7	7	7	6	6
15	6	6	6	8	7	8	7	6	5	6	5	6	6	6	6	6	6	6	7	6
16	7	7	7	8	7	7	7	6	6	6	6	7	7	7	7	7	8	7	6	6
17	7	7	7	7	7	7	8	8	7	7	7	8	7	7	7	7	7	6	6	7
18	7	7	6	7	7	7	7	6	6	6	6	6	7	7	7	7	7	8	8	7
19	7	6	6	6	6	6	6	6	5	6	6	7	6	7	7	6	7	7	7	6
20	7	6	7	7	7	7	8	6	5	6	6	7	5	6	6	6	6	6	7	6
21	7	7	9	7	7	8	8	7	7	6	7	7	6	7	7	7	8	8	6	5
22	6	6	6	8	7	7	8	7	7	10	62	23	7	7	7	8	7	7	8	7
23	6	7	7	7	7	8	7	8	6	8	27	12	7	7	8	7	7	7	8	7
24	7	6	5	6	6	7	7	6	6	7	6	7	7	7	7	7	7	7	7	6
25	7	7	6	7	8	7	8	7	6	6	6	6	6	6	6	6	7	7	6	7
26	7	7	7	7	8	8	7	7	6	6	6	7	6	6	7	6	7	9	6	5
27	5	7	6	7	7	7	8	7	7	8	7	7	8	7	7	7	7	7	7	7
28	6	6	6	7	7	8	8	6	7	6	6	6	6	6	8	7	7	7	8	7
29	6	6	5	6	6	6	7	6	6	6	6	6	7	7	7	6	7	7	7	7
30	7	7	6	7	8	7	8	7	6	5	6	6	7	5	6	6	7	7	6	6
31	8	7	7	7	7	8	7	6	7	6	7	7	7	7	8	7	7	8	6	6
32	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6
33	6	6	6	7	6	7	7	7	7	6	6	6	7	7	7	8	7	7	7	9
34	6	6	6	5	5	7	7	6	6	6	6	6	7	7	7	6	7	7	7	7
35	7	7	7	7	7	7	8	7	5	6	6	7	7	6	6	6	6	6	6	6
36	7	7	6	7	8	7	7	7	7	6	7	7	7	6	7	7	7	8	7	7
37	6	7	6	7	8	7	7	7	7	8	7	7	7	7	6	6	7	8	7	7
38	7	6	6	7	6	7	8	7	7	6	6	7	6	7	7	7	7	8	7	8

FRAME 16 IR1 DIODE GAIN = 2

666

VIKIN ANDER * CAMERA * FC2A CMT E **0**0** C
DARK CURRENT SUBTRACTOR ON L

667

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	2	1	0	1	0	1	1	2	1	1	2	2	2	1	1	1	1	2	1	2
10	1	1	1	1	1	1	2	1	1	1	1	1	1	0	1	1	2	2	1	1
11	1	1	0	1	1	1	1	0	1	1	1	1	1	0	1	1	1	2	1	2
12	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	0	0	1	1	1
13	2	1	1	2	1	1	1	2	2	2	2	2	1	0	1	1	1	2	2	2
14	1	1	0	1	0	1	1	1	1	2	1	2	2	2	1	1	1	3	2	1
15	1	1	0	1	1	1	1	1	1	2	1	2	2	1	1	1	1	1	1	2
16	1	1	1	1	1	0	1	1	0	1	1	1	1	0	1	1	1	2	1	1
17	2	1	1	1	1	1	0	1	2	2	1	2	1	1	1	1	1	0	0	1
18	1	2	1	2	1	1	1	1	3	2	1	1	1	1	1	1	1	1	1	1
19	1	1	1	1	0	1	2	2	1	2	2	2	1	1	2	1	2	2	1	1
20	1	0	0	0	1	1	1	1	2	2	1	1	1	1	0	0	1	1	1	1
21	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2
22	1	1	1	2	1	1	1	1	2	2	14	6	1	1	0	0	1	1	0	1
23	1	2	2	1	2	2	1	1	2	2	9	4	1	1	1	1	1	1	1	1
24	1	1	1	1	1	0	1	1	1	2	2	2	2	1	2	2	1	2	1	2
25	1	1	1	1	0	0	1	1	2	2	1	1	2	1	1	1	1	1	1	1
26	2	2	0	1	0	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1
27	2	1	1	1	0	1	1	0	1	2	2	2	1	0	1	1	1	1	1	1
28	1	2	1	2	2	1	1	1	2	2	1	1	1	1	1	1	1	1	0	1
29	2	1	1	1	1	0	1	0	2	2	1	2	2	1	2	1	1	2	1	2
30	1	1	1	1	0	0	1	1	1	1	1	2	1	1	1	0	1	1	1	1
31	2	1	1	1	0	1	1	0	1	0	1	1	0	1	1	1	1	1	1	1
32	2	1	1	1	1	1	1	1	1	1	3	2	2	1	1	0	1	1	0	1
33	1	1	1	2	2	2	1	1	2	2	2	2	1	1	1	1	1	3	1	1
34	1	1	1	1	1	1	1	1	1	2	2	2	1	1	2	2	2	2	1	2
35	1	1	1	1	0	0	1	1	0	2	1	1	1	1	2	0	0	1	1	2
36	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
37	1	2	1	1	1	0	1	1	1	1	2	2	1	1	1	0	1	1	0	0
38	1	1	2	1	2	2	2	1	1	2	2	2	1	1	1	1	1	1	1	1

FRAME 17 IR2 DIODE GAIN = 4

667

669

VIKING LANDER * CAMERA * FC2A GMT T **C**C** C
DARK CURRENT SUBTRACTOR ON L

SAMP	247		249		251		253		255		257		259		261		263		265	
LINE																				
9	8	8	8	9	7	7	7	7	9	9	6	8	8	9	8	9	7	8	8	9
10	8	8	6	8	5	7	9	8	7	7	8	9	8	8	8	7	7	6	8	8
11	9	9	7	6	6	8	7	6	7	7	6	8	8	7	8	7	8	7	7	9
12	8	8	8	8	6	7	8	7	7	9	8	10	8	6	7	6	7	7	6	7
13	8	9	8	8	8	8	8	8	8	9	8	7	8	8	8	6	7	8	7	8
14	8	8	8	8	7	7	7	7	8	8	8	8	10	9	8	8	8	8	8	9
15	8	6	7	7	7	6	8	7	7	8	8	9	8	8	7	7	6	6	7	8
16	9	9	7	6	7	8	8	6	7	7	7	7	7	7	7	5	7	6	8	8
17	10	8	7	8	7	7	7	8	6	8	8	10	9	8	7	6	8	8	6	6
18	7	9	10	8	8	8	9	8	6	9	9	9	7	8	9	7	7	8	7	7
19	9	8	7	8	6	6	7	7	9	8	8	8	8	10	9	8	8	9	7	9
20	8	6	7	9	6	6	7	8	8	8	8	9	7	8	7	8	7	7	7	9
21	11	10	8	7	6	8	8	6	5	7	8	9	8	8	7	6	7	7	7	7
22	9	9	7	7	7	6	8	7	8	9	56	27	10	7	7	6	6	7	6	7
23	9	8	9	8	7	8	9	8	7	10	21	17	7	7	8	8	7	7	9	8
24	7	9	6	7	7	8	7	7	8	8	8	8	9	10	8	7	8	8	8	8
25	7	7	7	8	7	7	8	7	8	8	8	10	9	8	9	8	7	5	6	8
26	8	9	8	7	6	7	8	6	5	6	7	7	7	8	7	7	7	7	8	8
27	9	8	7	8	7	8	7	8	8	7	7	9	9	8	7	6	7	7	6	6
28	8	8	8	10	8	8	8	9	9	8	8	10	8	7	8	7	6	7	7	7
29	9	8	7	8	6	6	6	6	8	8	8	8	8	9	9	8	7	8	8	8
30	8	7	7	8	6	6	7	8	8	8	7	8	8	8	8	7	7	8	7	9
31	9	9	8	7	6	8	7	6	6	6	7	8	7	7	6	6	7	7	8	7
32	9	8	7	8	8	7	7	7	7	8	8	9	9	10	8	6	7	8	7	6
33	8	7	8	8	8	8	8	9	7	7	7	9	8	7	7	8	8	7	7	7
34	7	9	7	9	7	7	7	6	8	8	8	8	8	9	9	9	9	8	8	8
35	7	8	8	7	7	7	7	7	8	7	7	9	8	7	8	7	7	7	6	8
36	8	8	8	7	8	7	8	7	6	7	7	9	9	7	8	6	7	7	7	8
37	8	8	7	7	7	7	8	8	6	8	7	10	9	8	7	5	7	7	7	6
38	8	8	7	8	8	7	9	7	7	9	8	9	9	8	8	7	7	7	8	7

668

FRAME 18 IR2 DIODE GAIN = 2

VIKIN ANCEF * CAMERA * FC2A GMT E **C**C** C
CARK CUFFENT SUETFACTCR CN L

SAMP	247		249		251		253		255		257		259		261		263		265	
LINE																				
9	1	2	2	2	2	2	2	1	2	2	1	2	2	2	2	1	2	2	2	2
10	2	1	1	2	1	2	1	1	2	2	1	2	2	2	2	2	2	2	2	2
11	2	3	2	2	2	2	2	2	1	2	1	2	2	1	2	2	1	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2
14	1	2	3	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
15	2	2	1	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	1	2
16	2	2	2	2	2	2	2	2	2	1	1	2	2	1	1	2	1	2	2	2
17	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	1
18	2	1	1	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2
19	1	1	2	2	1	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2
20	1	2	1	1	1	2	2	2	2	2	1	1	2	2	2	2	2	2	2	2
21	2	1	2	2	2	2	2	2	2	2	2	2	2	1	1	2	2	2	2	2
22	2	2	2	2	2	2	2	1	2	2	11	7	2	2	2	2	2	2	2	2
23	2	2	1	2	2	2	2	2	2	2	12	6	2	2	2	2	2	2	2	2
24	2	1	2	2	2	3	2	2	2	2	2	2	2	1	2	2	2	2	2	2
25	2	2	2	2	1	2	2	1	2	2	1	2	2	2	2	2	2	2	2	2
26	2	2	2	2	2	2	2	2	2	2	3	2	2	1	2	1	2	2	1	2
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	1	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2
29	2	1	1	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
30	2	2	2	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
31	2	2	2	2	2	2	2	2	2	2	1	2	2	1	2	2	2	2	2	2
32	2	1	2	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2
33	1	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
34	2	1	1	2	2	2	2	2	2	2	1	1	2	1	2	2	2	2	2	2
35	2	1	2	1	2	1	2	2	2	2	2	2	1	1	2	2	2	2	2	2
36	2	2	2	2	1	2	2	2	2	2	2	1	2	2	2	1	1	2	1	2
37	2	2	2	2	2	3	2	2	2	2	2	2	2	2	2	1	2	2	2	2
38	1	2	1	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2

FRAME 19 IR3 DIODE GAIN=4

699

VIKIN ANCER *   CAMERA *   FC2A   GMT E **C**C**   C
DARK CURRENT SUBTRACTOR ON   L

670

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	7	6	7	5	6	7	6	6	6	6	6	7	7	7	7	7	7	7	7	6
10	7	7	6	7	7	7	7	6	7	7	7	7	7	6	6	6	7	6	6	6
11	7	7	6	6	6	7	7	7	6	6	7	7	7	7	6	7	7	8	7	6
12	6	6	6	7	8	7	7	7	7	7	7	7	6	7	7	6	6	7	7	6
13	7	6	6	7	7	7	7	6	6	6	6	6	6	6	7	7	7	6	7	7
14	6	7	6	5	6	7	7	6	6	6	6	6	6	6	6	6	8	7	7	7
15	6	6	6	7	7	8	7	7	6	6	7	7	6	6	6	6	6	6	6	7
16	6	7	7	6	6	7	6	6	7	6	6	7	7	6	6	7	7	7	7	7
17	7	6	5	7	8	7	7	7	6	7	7	7	7	7	6	7	7	7	7	6
18	6	6	7	6	6	7	6	7	6	7	6	7	6	5	7	7	7	7	6	7
19	6	6	6	7	6	6	6	6	6	6	6	6	7	6	6	6	7	6	7	6
20	7	6	6	6	6	7	8	6	6	6	6	7	7	6	6	6	7	6	7	6
21	7	7	7	7	7	7	7	6	7	7	6	9	6	6	6	6	7	7	7	7
22	6	6	6	6	7	7	7	6	7	8	46	27	7	7	7	7	7	7	7	6
23	7	6	7	7	7	7	6	7	7	8	44	24	7	5	6	7	8	7	7	7
24	6	6	7	6	6	6	7	7	6	6	7	7	6	6	6	6	6	7	7	7
25	7	6	7	6	6	7	7	7	7	6	6	6	6	6	6	6	7	7	6	6
26	7	7	6	7	7	8	7	6	7	7	7	7	7	6	6	7	7	7	7	7
27	7	6	6	7	7	7	7	7	6	7	7	7	6	7	7	6	8	7	6	7
28	7	6	6	6	6	8	7	6	6	6	7	7	6	5	7	6	7	7	7	7
29	6	6	5	6	5	6	7	6	6	6	6	6	6	6	7	7	6	7	7	7
30	6	6	6	6	6	7	7	7	7	5	6	6	6	7	6	6	7	6	6	6
31	7	6	6	7	7	7	7	7	7	6	7	7	7	6	6	6	7	7	7	7
32	7	6	6	6	6	7	7	7	7	7	8	7	7	8	7	7	7	7	7	7
33	6	6	6	6	6	7	7	6	6	7	6	7	5	6	7	6	7	7	7	7
34	6	7	6	7	6	5	6	8	6	6	6	6	6	7	7	7	6	6	6	6
35	7	6	6	6	6	7	8	7	8	6	6	6	7	6	7	6	6	7	7	7
36	7	7	7	7	6	8	7	7	6	7	6	7	7	6	7	6	7	7	7	7
37	6	6	6	6	7	6	8	7	6	6	7	8	7	6	7	7	7	7	8	7
38	7	6	6	5	6	7	7	7	6	6	7	7	5	6	7	6	6	7	7	7

FRAME 20   IR3 DIODE   GAIN = 2

670

VIKING LANDER *   CAMERA *   FC2A   CMT T **C**C**   C L
DARK CURRENT SUBTRACTOR ON

SAMP / LINE	247		249		251		253		255		257		259		261		263		265	
9	2	2	2	2	1	3	2	1	2	2	2	2	2	2	2	2	1	2	1	2
10	2	2	2	2	2	2	2	2	2	2	2	2	2	3	2	1	1	2	1	1
11	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
12	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
13	2	2	3	2	2	2	3	1	1	2	2	2	2	2	2	2	2	2	2	2
14	2	1	2	2	2	1	3	1	1	2	2	2	2	2	2	2	1	2	1	2
15	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2	1	2
16	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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21	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
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24	2	2	2	2	3	1	2	3	1	1	2	2	2	2	2	2	2	2	1	1
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26	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
27	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
28	2	2	1	2	3	2	2	3	2	1	2	2	2	2	2	2	2	2	2	2
29	2	2	2	2	2	3	2	3	2	3	1	2	2	3	2	2	2	2	2	2
30	2	2	2	2	2	2	2	2	1	2	2	1	1	2	3	1	2	3	2	1
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32	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
33	2	1	2	2	2	2	2	2	3	1	3	2	2	2	2	2	2	2	2	2
34	2	1	2	2	2	2	3	2	1	2	1	2	2	2	2	2	2	2	3	3
35	2	2	2	2	2	2	2	2	2	2	2	2	3	3	2	2	2	3	1	1
36	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
37	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
38	3	1	2	2	2	2	2	1	3	1	1	1	3	2	2	2	3	2	2	2

FRAME 21   SURVEY DIODE   GAIN=4.

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VIKIN… NLEF *   CAMERA *   FC2A   CMT T… **C**C**   , C L
DARK CURRENT SUBTRACTOR ON

LINE \ SAMP	247		249		251		253		255		257		259		261		263		265	
9	7	7	7	7	7	8	8	7	7	7	8	7	7	7	8	7	8	8	8	7
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24	7	7	7	7	7	7	7	7	8	8	8	8	7	7	7	7	7	7	7	8
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27	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
28	8	7	8	7	7	7	7	7	7	8	7	8	7	7	7	7	7	7	7	7
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31	7	7	7	7	7	7	7	7	7	7	7	8	7	7	7	7	7	7	7	7
32	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
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36	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
37	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
38	8	7	7	8	7	7	7	7	7	7	7	8	7	7	7	7	7	7	7	7

FRAME 22   SURVEY DIODE   GAIN=2

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 1 December 1974

CALIBRATION RUN COLOR RESPONSE VS. ELEVATION ANGLE, FC-2A CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Table I: Raw data from the Color Response Test consisting of mean DN and standard deviation for a 2x3 pixel area centered in the MMA radiometric source, at four different pointing angles for each channel.

Graph I & II: Plots of data from Table I.

Results Summary attached.

TEST DESCRIPTION The MMA radiometric source was imaged by the infrared and visual color channels at four different pointing angles (0°, +30°, -30°, -50°). The swing fixture was used to offset the elevation angle.

DATA PROCESSING DESCRIPTION The mean DN and standard deviation was computed for a 2x3 pixel area centered on the image.

ANALYST David L. Atwood

APPROVAL Michael R. Wolf

TABLE I

COLOR RESPONSE VS. ELEVATION ANGLE

CAMERA: FC-2A

RAW DATA

CHAN.	ELEV.	OFFSET	GAIN	MEAN DN	SIGMA
RED	0^o	1	4	51.167	5.145
BLUE	0^o	1	4	41.000	1.633
GREEN	0^o	1	4	49.833	3.670
IR1	0^o	1	4	45.333	3.300
IR2	0^o	1	4	40.833	2.034
IR3	0^o	1	4	43.167	2.034
SURVEY	0^o	1	4	48.667	2.687
RED	$+30^o$	1	4	51.667	2.285
BLUE	$+30^o$	1	4	40.000	0.816
GREEN	$+30^o$	1	4	50.167	1.572
IR1	$+30^o$	1	4	47.333	1.886
IR2	$+30^o$	1	4	42.667	1.106
IR3	$+30^o$	1	4	44.000	1.155
SURVEY	$+30^o$	1	4	50.167	0.687
RED	-30^o	1	4	54.333	1.106
BLUE	-30^o	1	4	41.000	1.633
GREEN	-30^o	1	4	51.500	0.957
IR1	-30^o	1	4	46.167	2.267
IR2	-30^o	1	4	41.000	3.000
IR3	-30^o	1	4	41.833	3.023
SURVEY	-30^o	1	4	49.167	1.675
RED	-50^o	1	4	53.333	1.374
BLUE	-50^o	1	4	40.333	1.106
GREEN	-50^o	1	4	51.000	1.000
IR1	-50^o	1	4	45.500	1.384
IR2	-50^o	1	4	40.667	1.247
IR3	-50^o	1	4	42.000	1.826
SURVEY	-50^o	1	4	48.833	1.572

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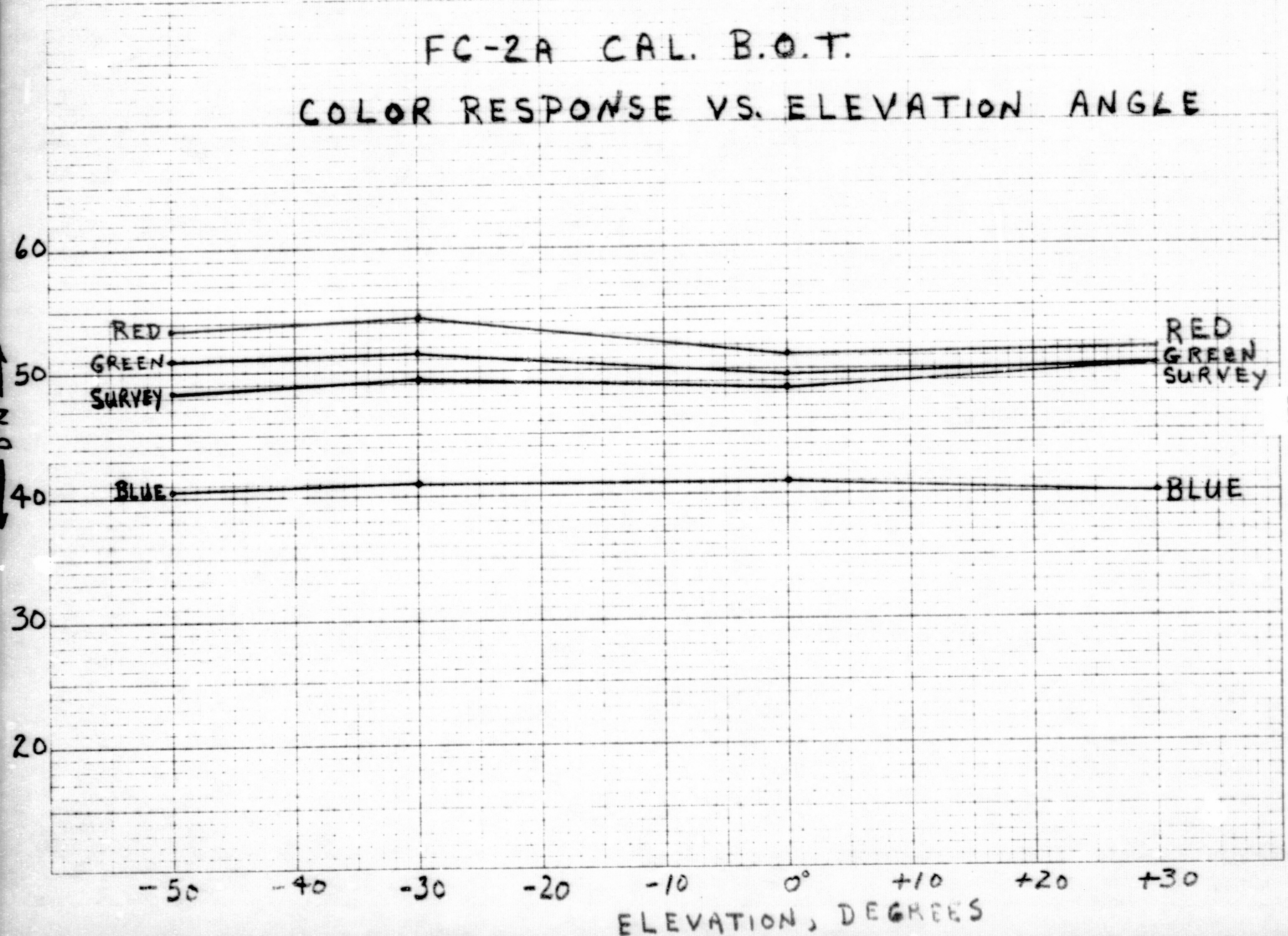
GRAPH I



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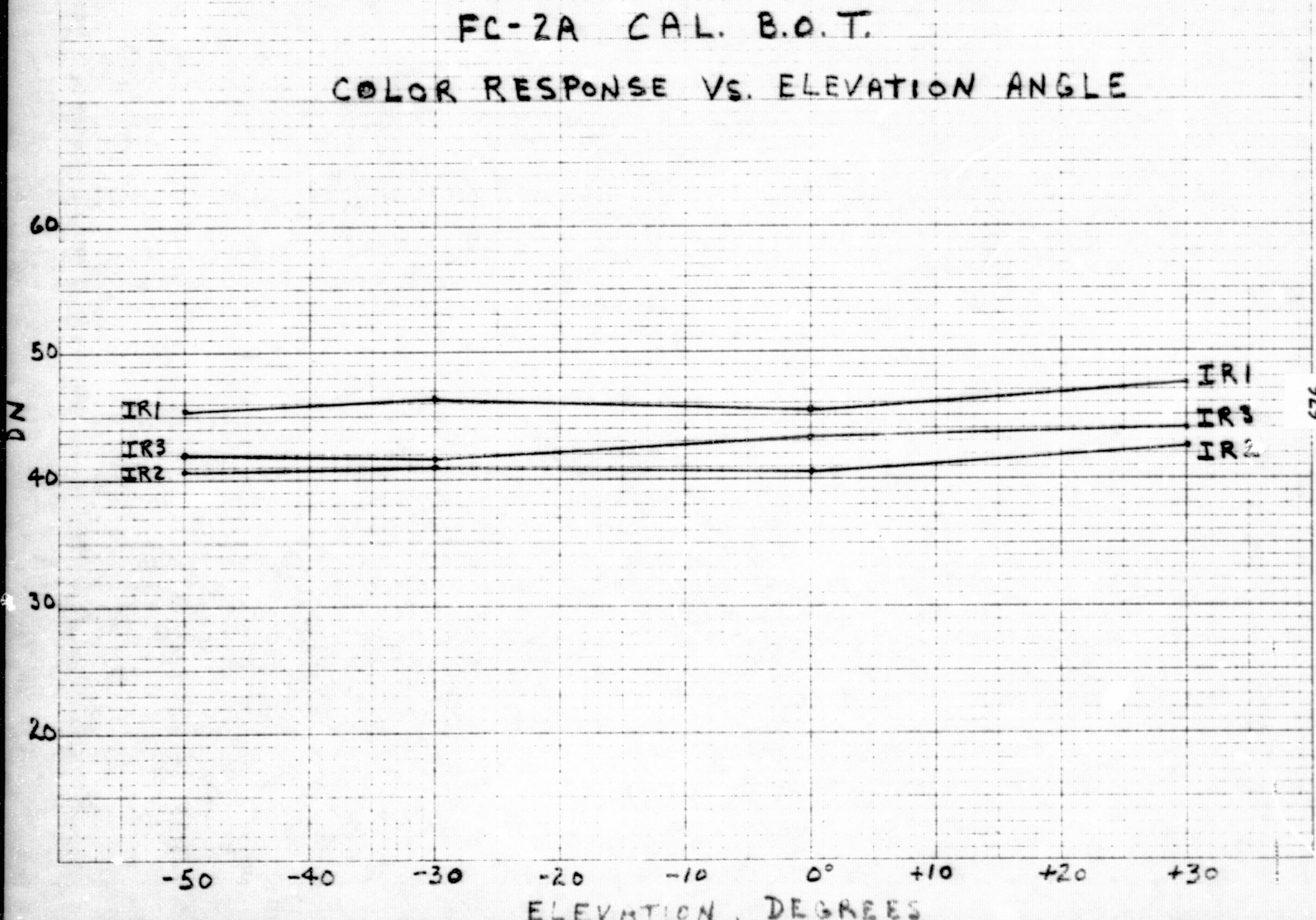
GRAPH II



676

RESULTS SUMMARY:

There does not appear to be a significant color response change as a function of elevation on this test. There is no indication in the test documentation as to the position of the contamination cover. It may be important to know if the contamination cover was open or closed.

III-E

FC-3A CAMERA

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Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM DATE: 1/30/75

CALIBRATION RUN INTERNAL CAL. THERMAL CAL FC-3A

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Tables of Internal Cal #2 and Cal #3 for every diode at -37°C, -25°C and +14°C.

TEST DESCRIPTION Internal calibrate source at level 2 and level 3 was selected for 3 lines by each diode at 3 temperatures in the Thermal Vacuum chamber.

DATA PROCESSING DESCRIPTION Mean DN and σ were listed for the last 100 samples of the third line in each PDF.

ANALYST Michael E. Morrill

APPROVAL Michael F. Wolf

RESULTS SUMMARY:

There appears to be no anomalous data for this test. Noise levels for all data are aceptable.

TABLE I

FC-3A Internal Calibration Thermal Cal Test

VIK 270-D PSA Temp -37°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	P.D.F.
2	BB1	1	1	35.630	1.302	31
3	BB1	1	2	45.230	0.761	32
2	BB2	1	1	35.750	1.195	33
3	BB2	1	2	44.310	0.645	34
2	BB3	1	1	36.270	1.311	35
3	BB3	1	2	45.790	0.654	36
2	BB4	1	1	36.440	1.367	37
3	BB4	1	2	46.070	0.638	38
2	BLUE	1	0	48.090	3.017	39
3	BLUE	1	1	33.940	1.612	40
2	GREEN	1	0	50.340	3.254	41
3	GREEN	1	1	48.900	1.683	42
2	RED	1	1	33.900	0.625	43
3	RED	1	2	45.640	0.482	44
2	IR1	1	1	34.760	1.041	45
3	IR1	1	2	37.120	0.588	46
2	IR2	1	1	25.450	1.186	47
3	IR2	1	2	22.370	0.643	48
2	IR3	1	1	23.710	0.983	49
3	IR3	1	2	20.790	0.496	50
2	SURVEY	1	1	36.300	0.468	51
3	SURVEY	1	2	46.000	0.0	52

TABLE II

FC-3A Internal Calibration Thermal Cal est

VIK 270-D PSA Temp -25°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	P.D.F.
2	BB1	1	1	37.400	1.140	96
3	BB1	1	2	45.300	0.658	97
2	BB2	1	1	35.920	0.946	98
3	BB2	1	2	44.110	0.530	99
2	BB3	1	1	37.600	1.049	100
3	BB3	1	2	46.180	0.574	101
2	BB4	1	1	37.990	1.196	102
3	BB4	1	2	46.460	0.715	103
2	BLUE	1	0	47.590	2.811	104
3	BLUE	1	1	34.700	1.360	105
2	GREEN	1	0	52.050	2.685	106
3	GREEN	1	1	48.650	1.353	107
2	RED	1	1	35.690	0.579	108
3	RED	1	2	45.760	0.495	109
2	IR1	1	1	36.300	0.975	110
3	IR1	1	2	37.070	0.516	111
2	IR2	1	1	26.600	1.149	112
3	IR2	1	2	23.290	0.588	113
2	IR3	1	1	24.950	0.865	114
3	IR3	1	2	21.060	0.369	115
2	SURVEY	1	1	37.430	0.535	116
3	SURVEY	1	2	46.000	0.0	117

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TABLE III

FC-3A Internal Calibration Thermal Cal. Test

VIK 217-D PSA Temp +14°C

CAL #	CHAN.	OFF	GAIN	$\overline{DN}$	σ	P.D.F.
2	BB1	1	1	38.270	1.232	31
3	BB1	1	2	45.960	0.762	32
2	BB2	1	1	38.910	0.961	33
3	BB2	1	2	44.940	0.509	34
2	BB3	1	1	39.900	1.025	35
3	BB3	1	2	46.860	0.532	36
2	BB4	1	1	40.180	1.170	37
3	BB4	1	2	48.080	0.704	38
2	BLUE	1	0	47.220	2.348	39
3	BLUE	1	1	34.120	1.373	40
2	GREEN	1	0	49.100	2.552	41
3	GREEN	1	1	49.100	1.560	42
2	RED	1	1	36.590	0.568	43
3	RED	1	2	45.070	0.328	44
2	IR1	1	1	36.880	0.779	45
3	IR1	1	2	38.030	0.499	46
2	IR2	1	1	28.680	0.969	47
3	IR2	1	2	24.540	0.670	48
2	IR3	1	1	26.050	0.830	49
3	IR3	1	2	23.190	0.505	50
2	SURVEY	1	1	39.710	0.497	51
3	SURVEY	1	2	48.990	0.112	52

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INTERNAL CALIBRATE T.V. #2 CAMERA FC3A

TAPE VIK 270 D

DIODE	TEMP	GAIN	$\overline{DN}$	σ	PDF	CAL			
BB1	-37°	1	35.630	1.302	31	2			
		2	45.230	0.761		3			
BB2		1	35.750	1.195		2			
		2	44.310	0.645		3			
BB3		1	36.270	1.311		2			
		2	45.790	0.654		3			
BB4		1	36.440	1.367		2			
		2	46.070	0.636		3			
BLUE		0	48.090	3.017		2			
		1	33.940	1.612		3			
GREEN		0	50.340	3.254		2			
		1	48.900	1.683		3			
RED		1	33.900	0.625		2			
		2	45.640	0.482		3			
IR1		1	34.760	1.041		2			
		2	37.120	0.588		3			
IR2		1	25.450	1.186		2			
		2	22.370	0.643		3			
IR3		1	23.710	0.983		2			
		2	20.790	0.496		3			
SURVEY		1	36.320	0.468		2			
		2	46.000	0.0	52	3			

INTERNAL CALIBRATE T.V. #2 CAMERA FC-3A

TAPE VIK 270 D

DIODE	TEMP	GAIN	$\overline{DN}$	σ	PDF	CAL			
BB1	-25	1	37.400	1.140	96	2			
		2	45.300	0.658		3			
BB2		1	35.920	0.946		2			
		2	44.110	0.530		3			
BB3		1	37.600	1.049		2			
		2	46.180	0.574		3			
BB4		1	37.990	1.196		2			
		2	46.460	0.715		3			
BLUE		0	47.590	2.811		2			
		1	34.700	1.360		3			
GREEN		0	52.050	2.685		2			
		1	48.650	1.353		3			
RED		1	35.690	0.579		2			
		2	45.760	0.495		3			
IR1		1	36.300	0.975		2			
		2	37.070	0.516		3			
IR2		1	26.600	1.149		2			
		2	23.290	0.598		3			
IR3		1	24.950	0.865		2			
		2	21.060	0.369		3			
SURVEY		1	37.430	0.535		2			
		2	46.000	0.0	117	3			

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INTERNAL CALIBRATE T.V. #2 CAMERA FC-3A

TAPE VIK 271 D

DIODE	TEMP	GAIN	$\overline{DN}$	σ	PDF	CAL
BB1	+14	1	38.270	1.232	31	2
		2	45.960	0.762		3
BB2		1	38.910	0.961		2
		2	44.940	0.509		3
BB3		1	39.900	1.025		2
		2	46.860	0.532		3
BB4		1	40.180	1.170		2
		2	48.080	0.704		3
BLUE		0	47.220	2.348		2
		1	34.120	1.373		3
GREEN		0	49.100	2.352		2
		1	49.100	1.560		3
RED		1	36.590	0.568		2
		2	45.070	0.328		3
IR1		1	36.880	0.779		2
		2	38.030	0.499		3
IR2		1	28.680	0.969		2
		2	24.540	0.670		3
IR3		1	26.050	0.830		2
		2	23.190	0.505		3
SURVEY		1	39.710	0.497		2
		2	48.990	0.112	52	3

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Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM **DATE:** 1/10/75

CALIBRATION RUN FC-3A GAIN TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Plots of DN vs. voltage input for all six gain settings and three temperatures.

Tables of the plotted values. Plots of gain percent vs. temperature.

Results Summary attached.

TEST DESCRIPTION Various voltages were input to the video amplifier directly via the test connector. 2.5° PDF's were generated at each of five voltage levels for all gain settings and three temperatures.

DATA PROCESSING DESCRIPTION Mean DN and standard deviation were calculated for the 30x30 pixel area (total = 900 pixels) starting at line 80 and sample 200. Linear least squares was used to determine the slope of DN vs. voltage relationship, 90 PDF's were processed.

ANALYST Michael Edward Morrill

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

One frame in the Gain = 0 Room Temp test was discarded due to line drops. All other frames had σ's between 0.0 and 0.66 showing that this data is very noise free. After saturated frames were discarded a linear least squares analysis was used to obtain a "best fit" value for the gain slopes. The errors forthe gain slopes are less than 1.1% for all gains except GAIN = 0.

The % gain as a function of temperature showed less than 1% variation over the range -41°C to +12°C for all gain steps except GAIN = 0.

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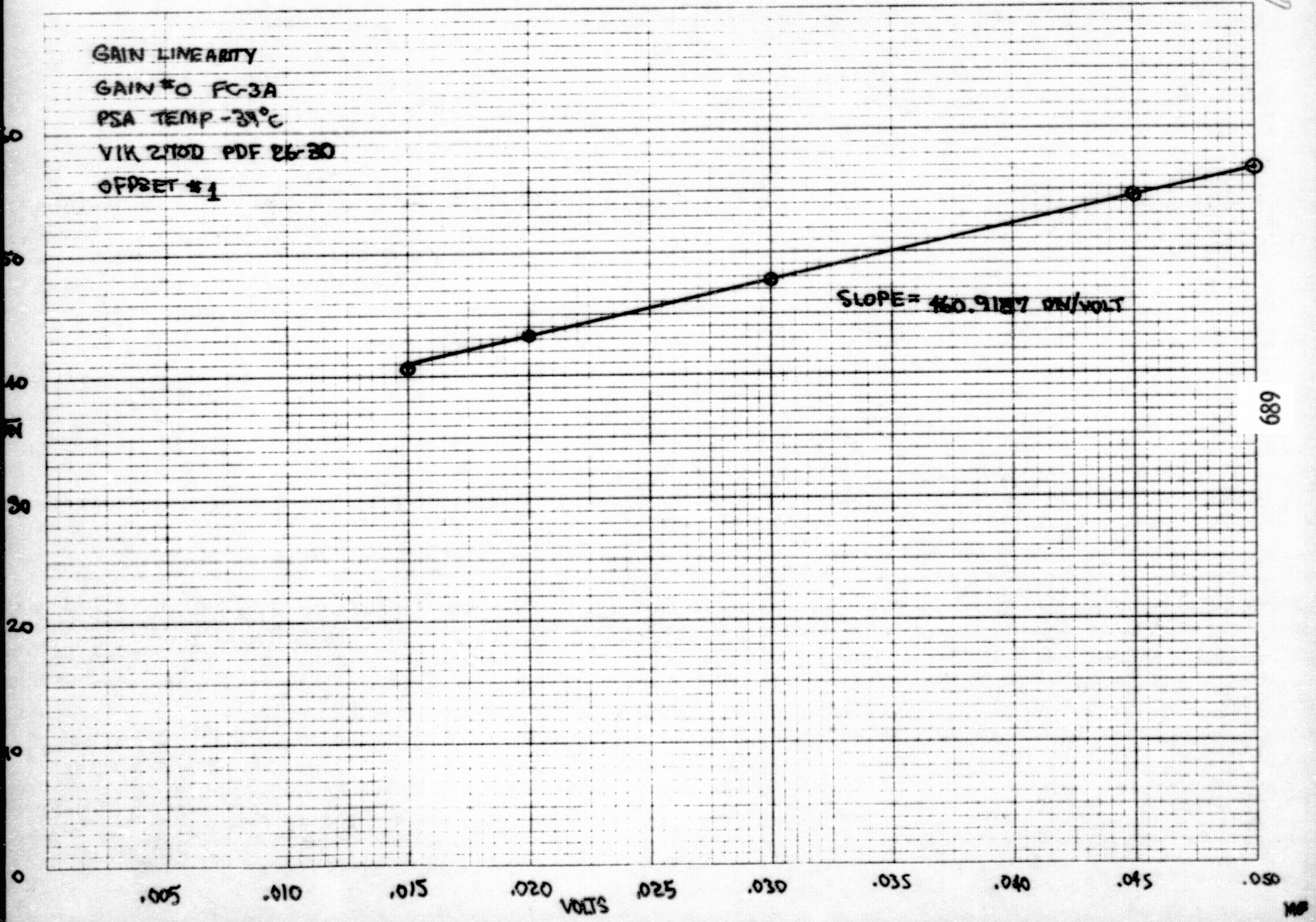

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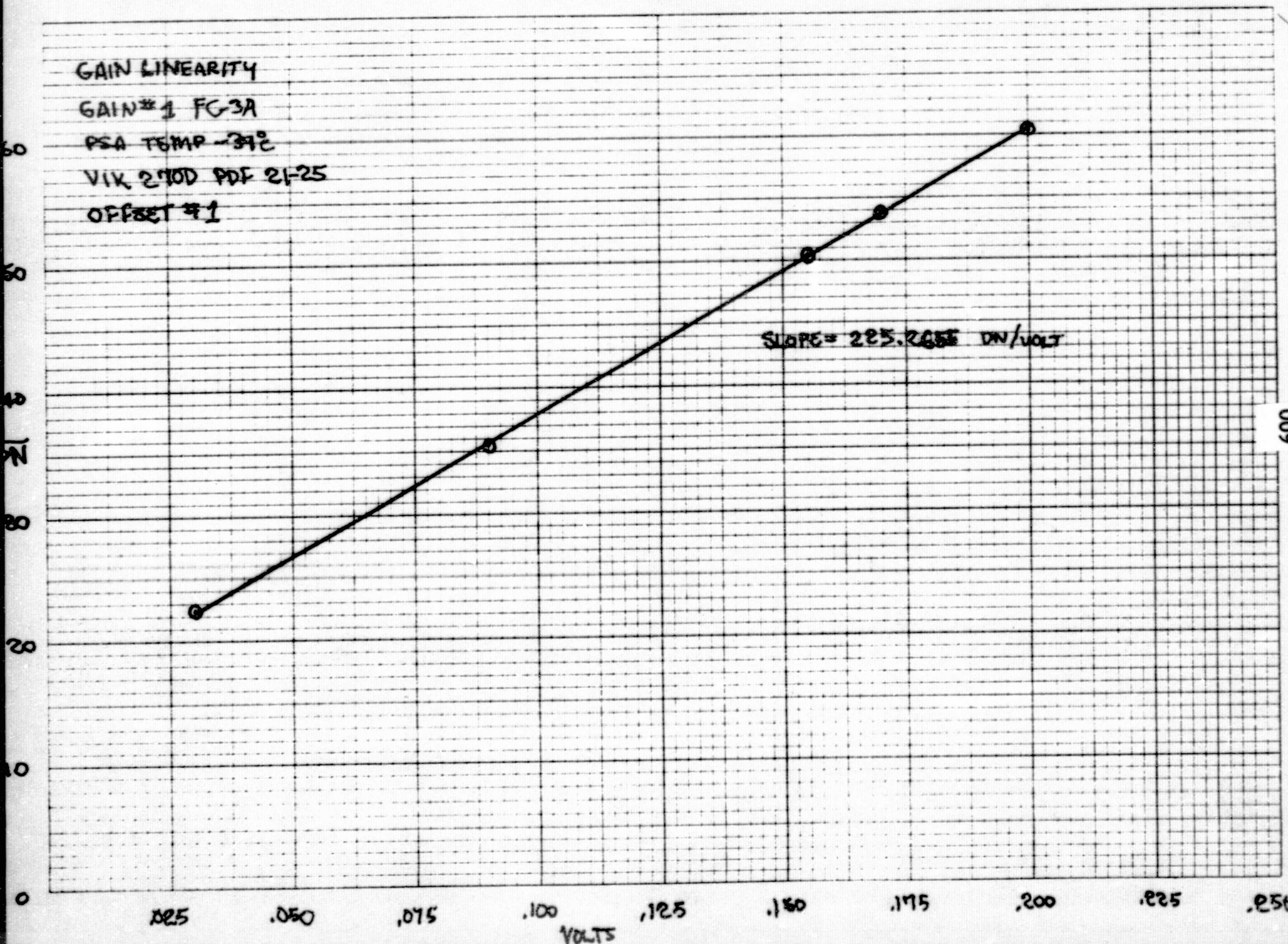

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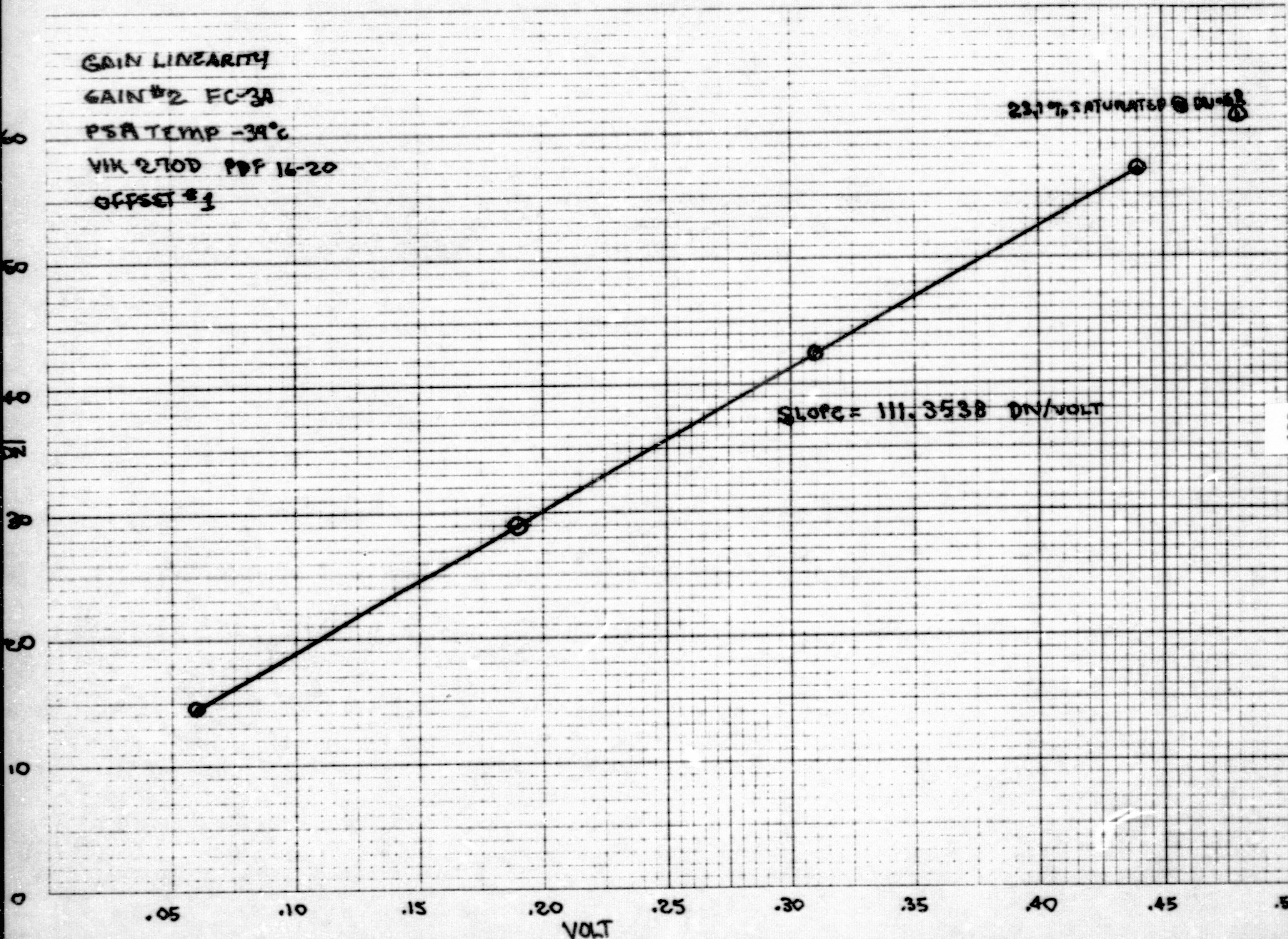

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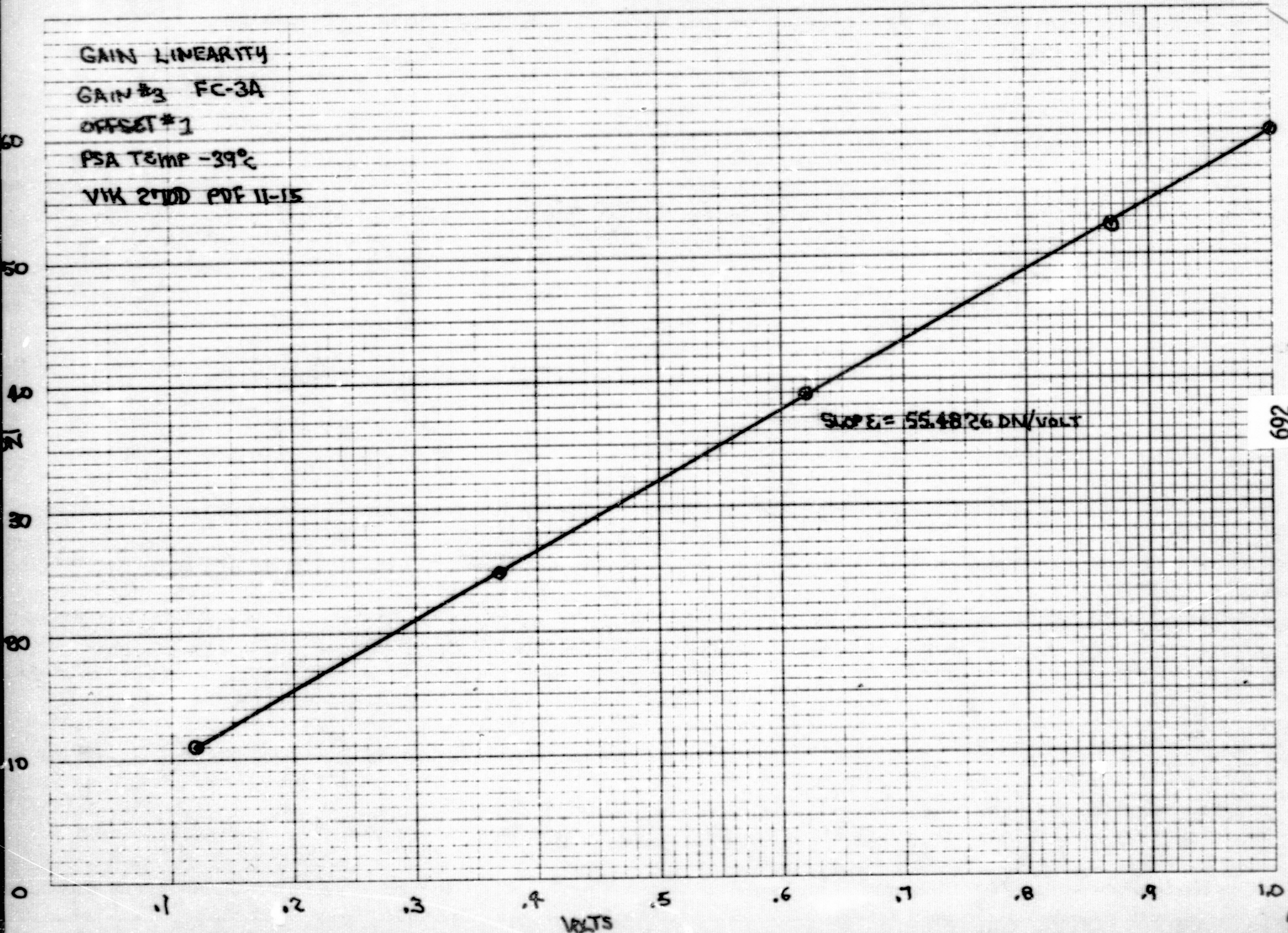

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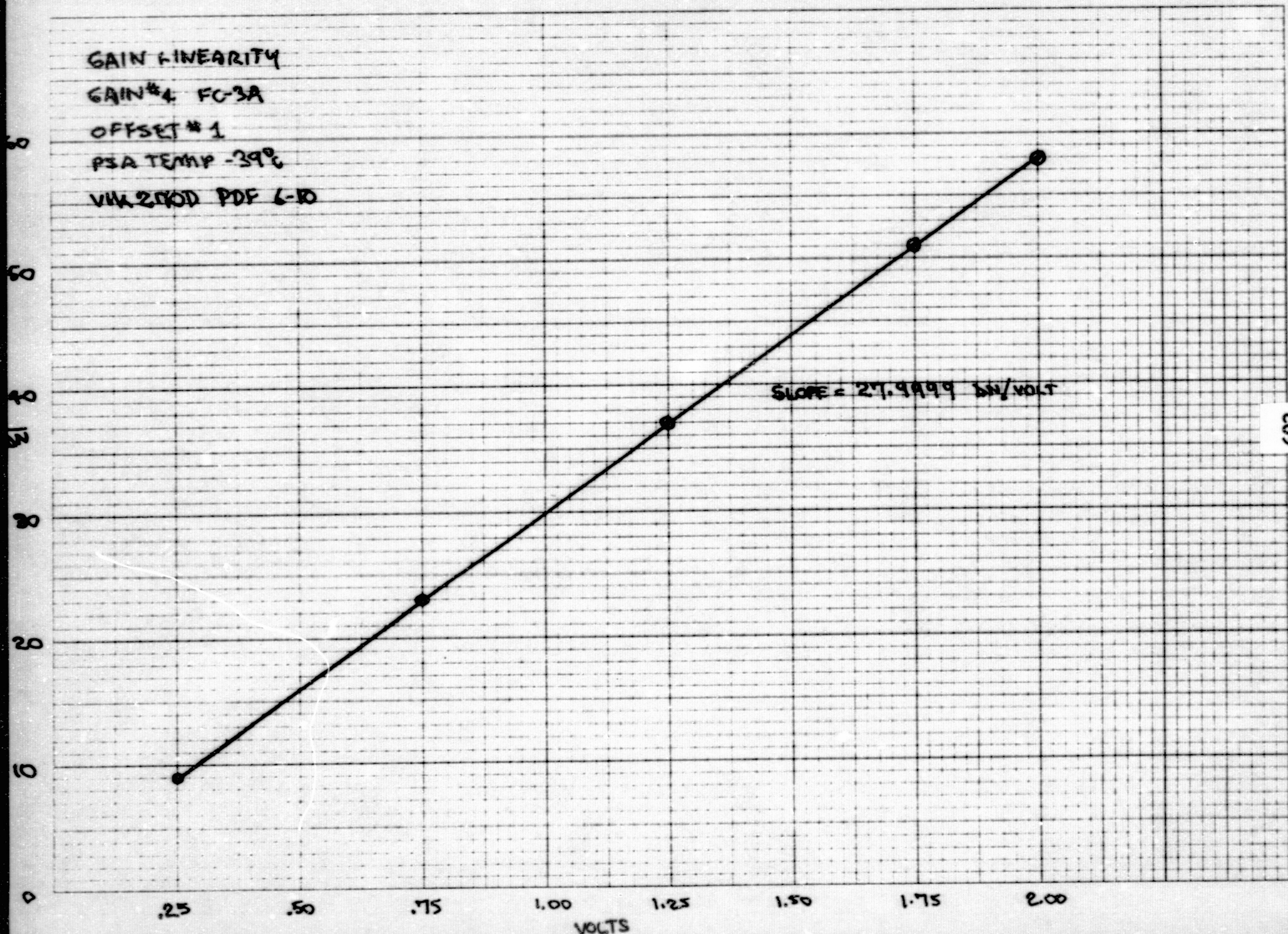

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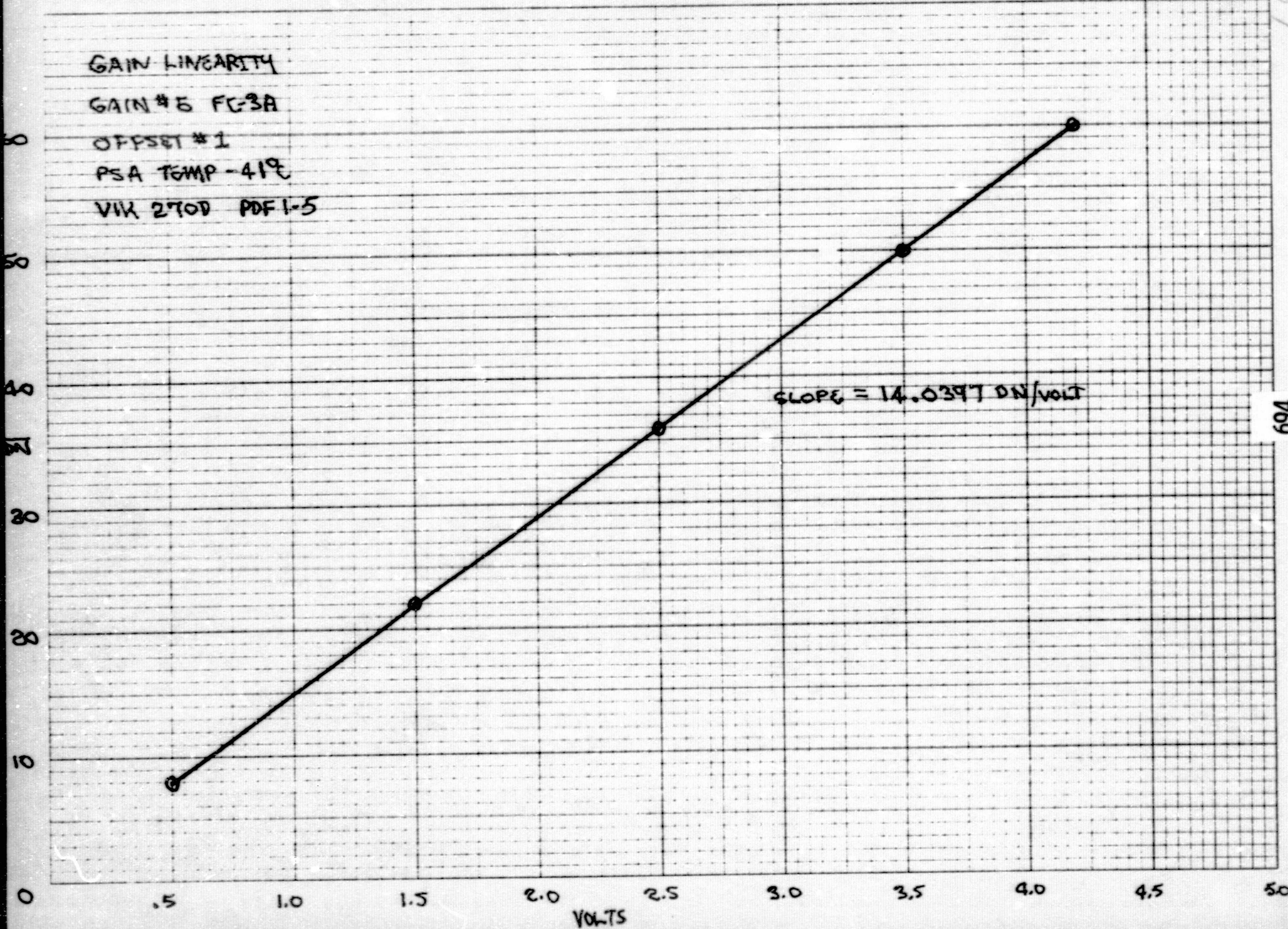

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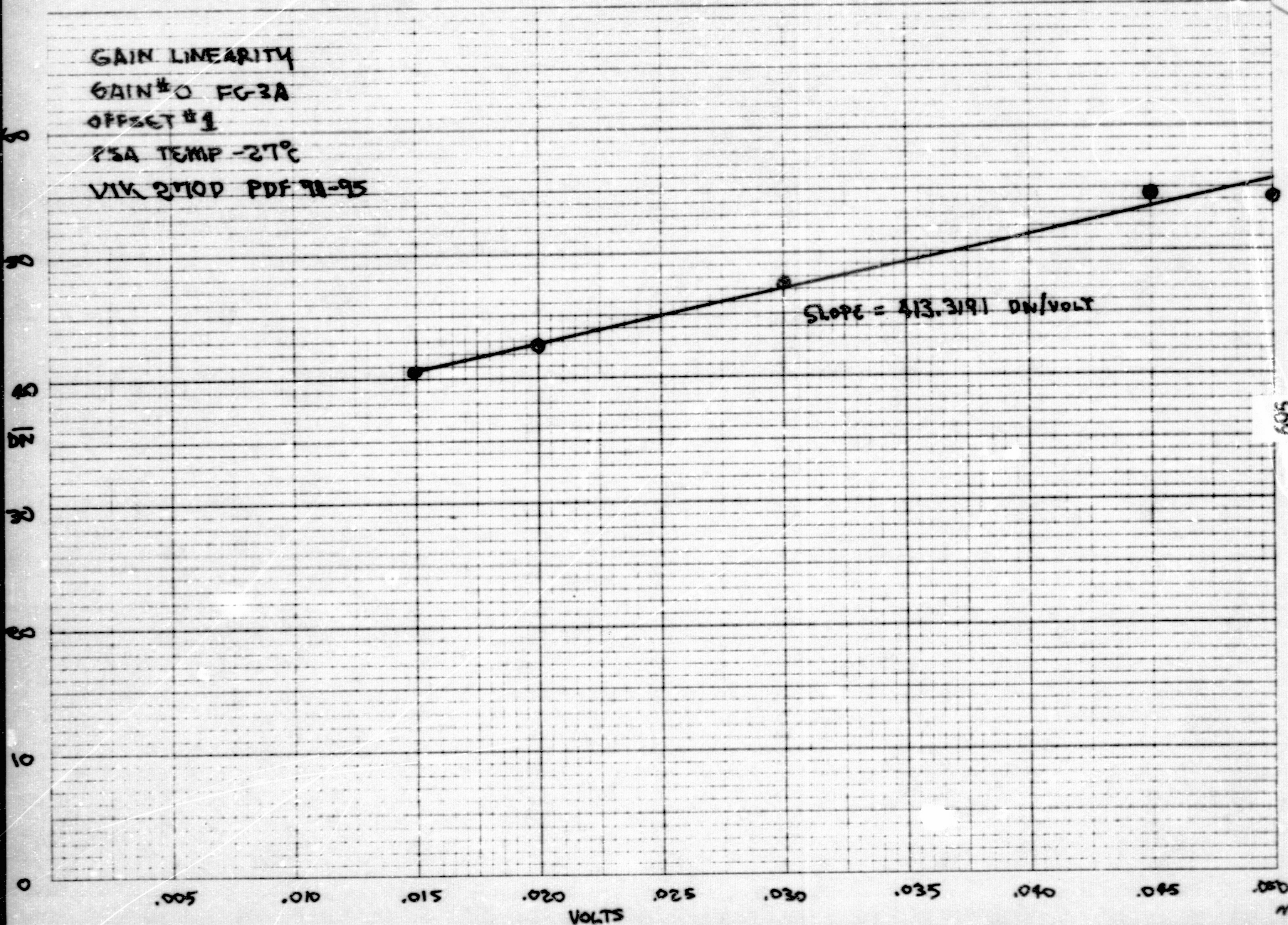
MADE IN U.S.A.

69



605

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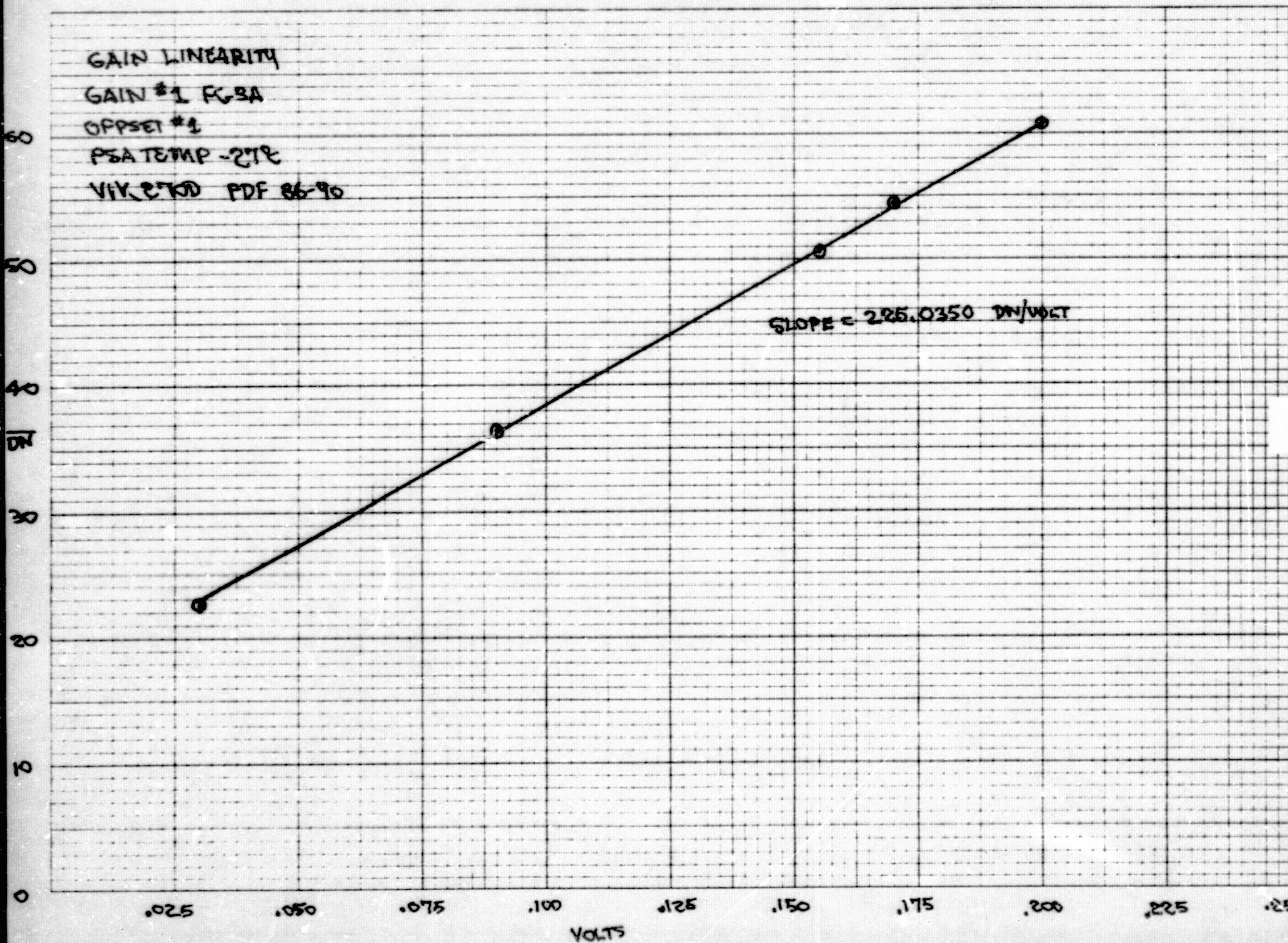
696



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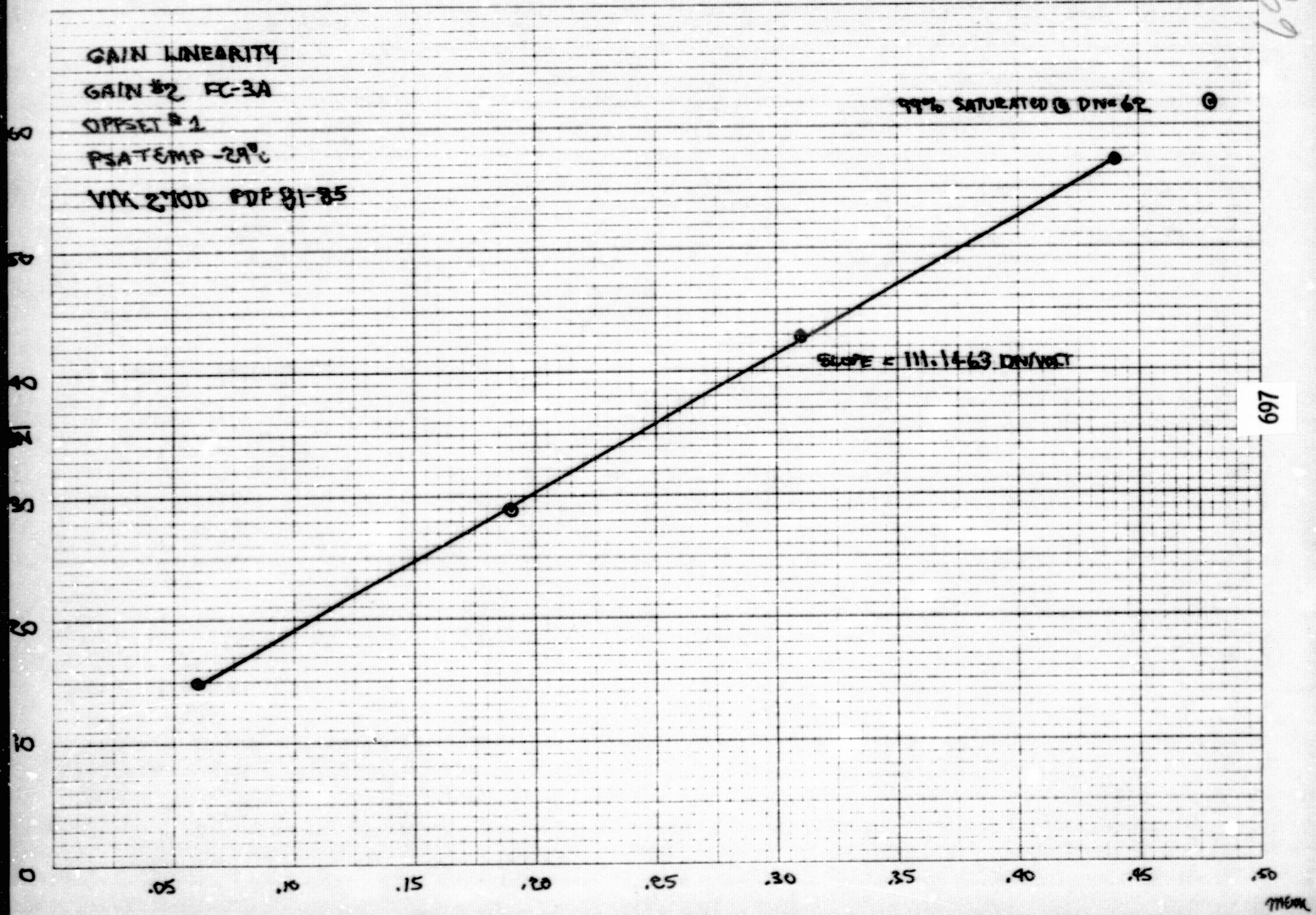
697



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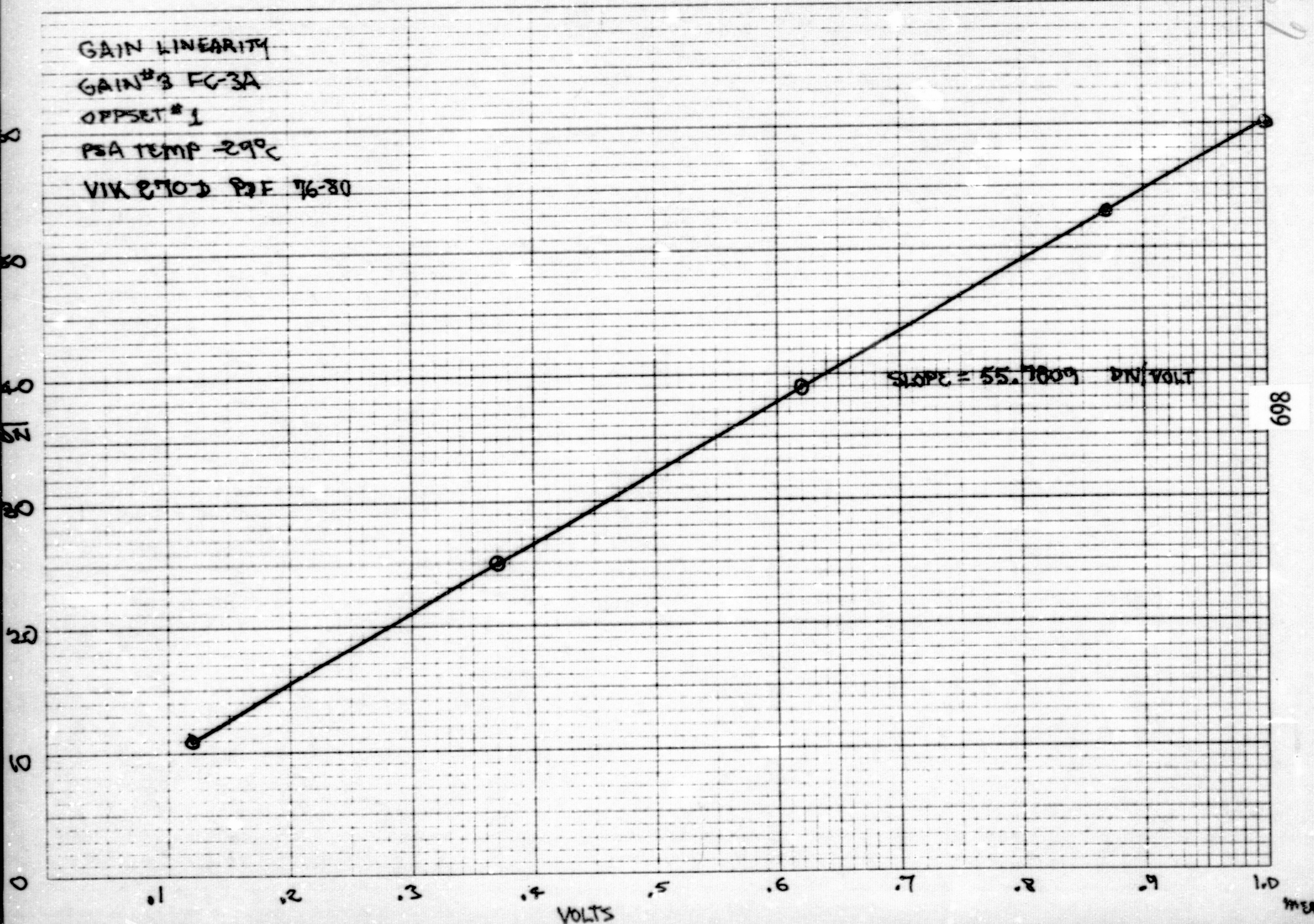

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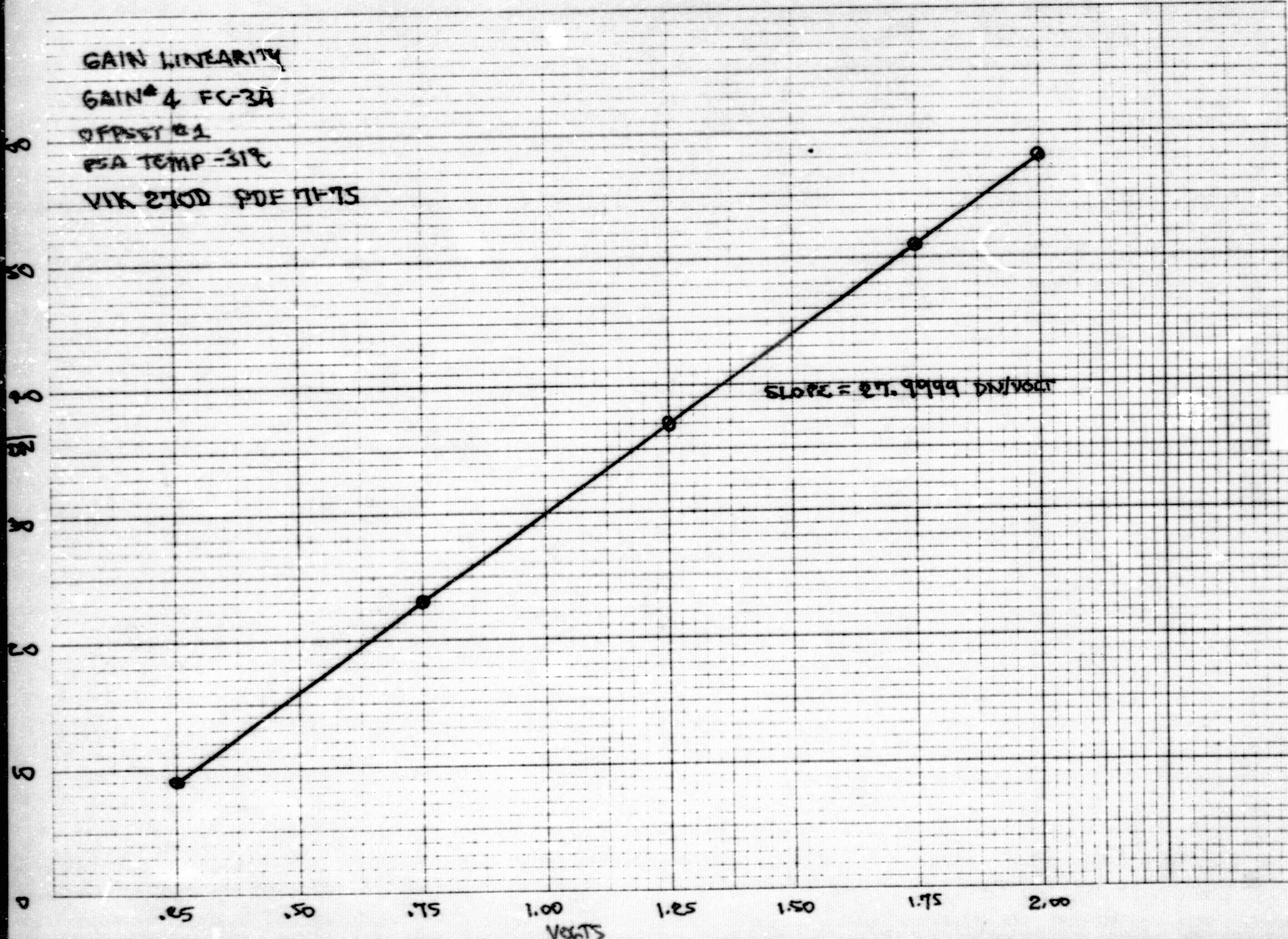
699



699

97151

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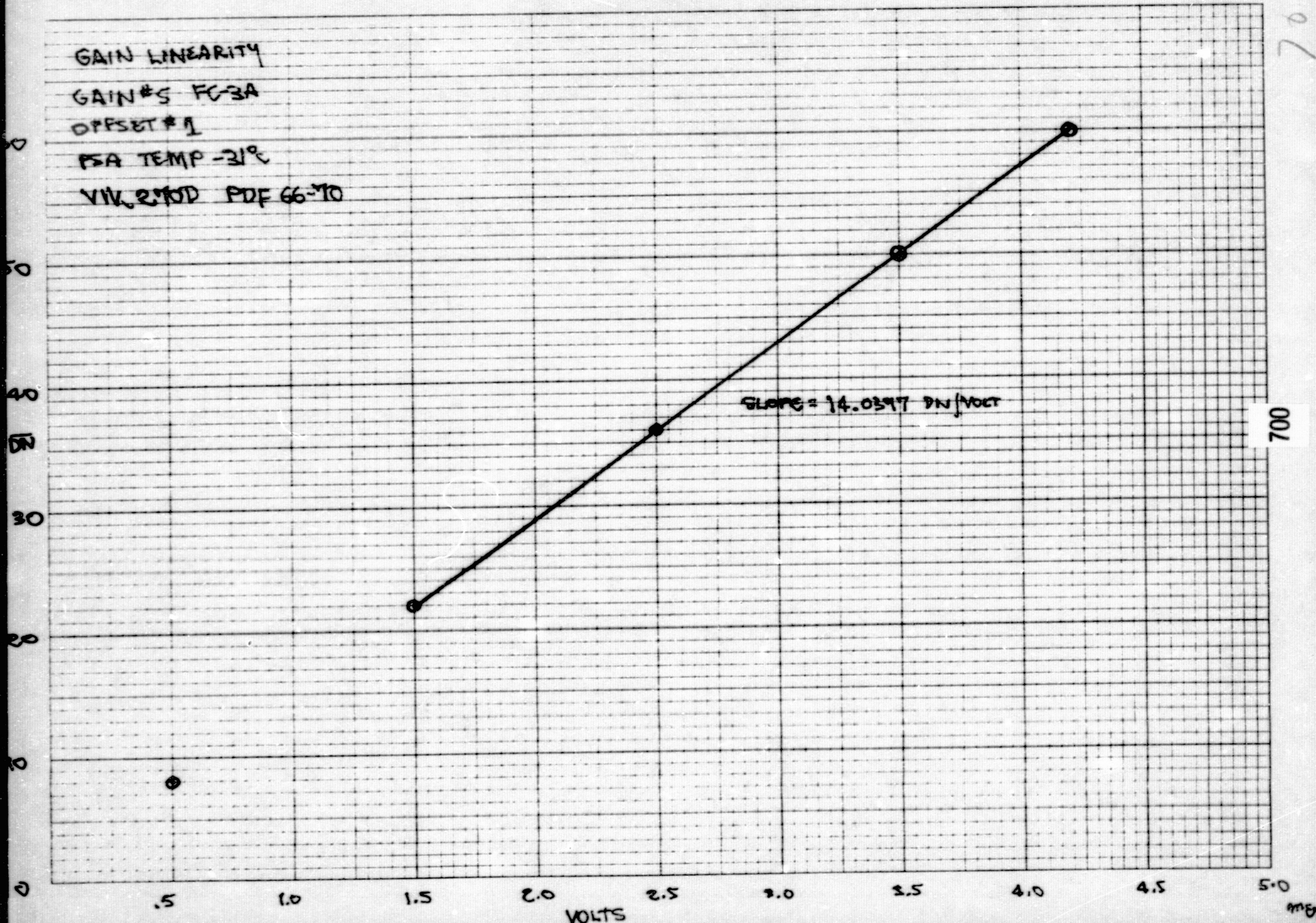
702



700

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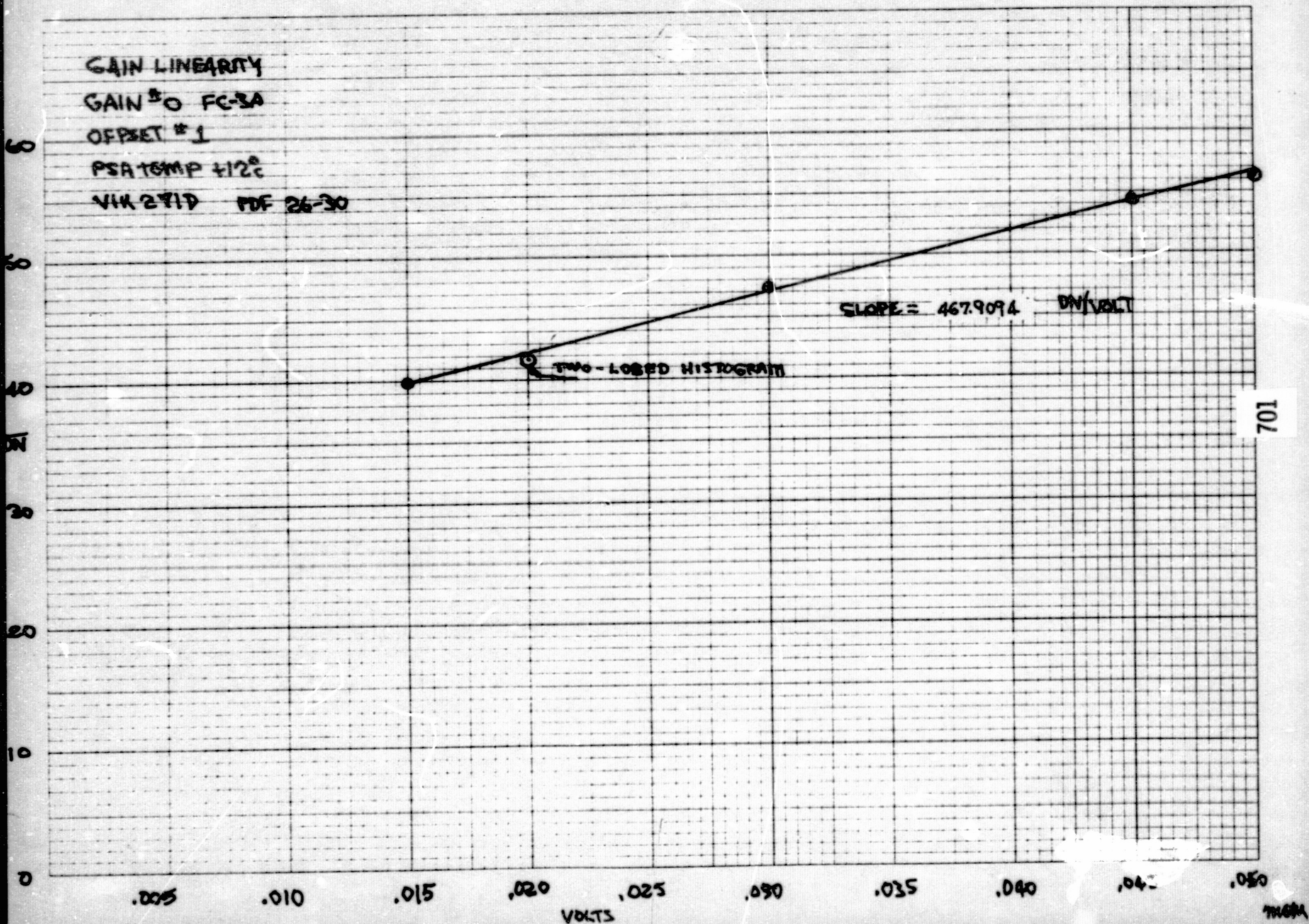
MADE IN U.S.A.



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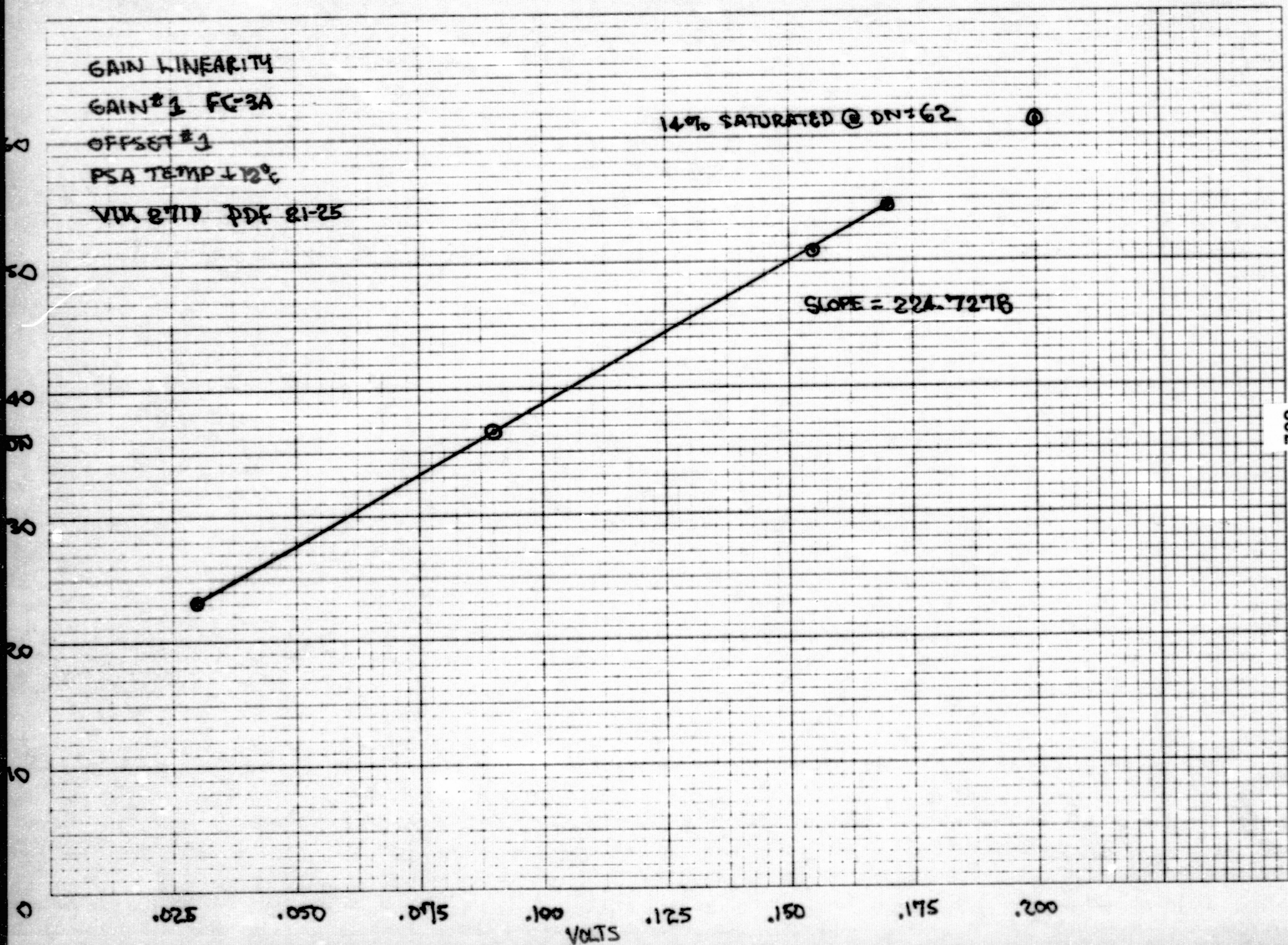

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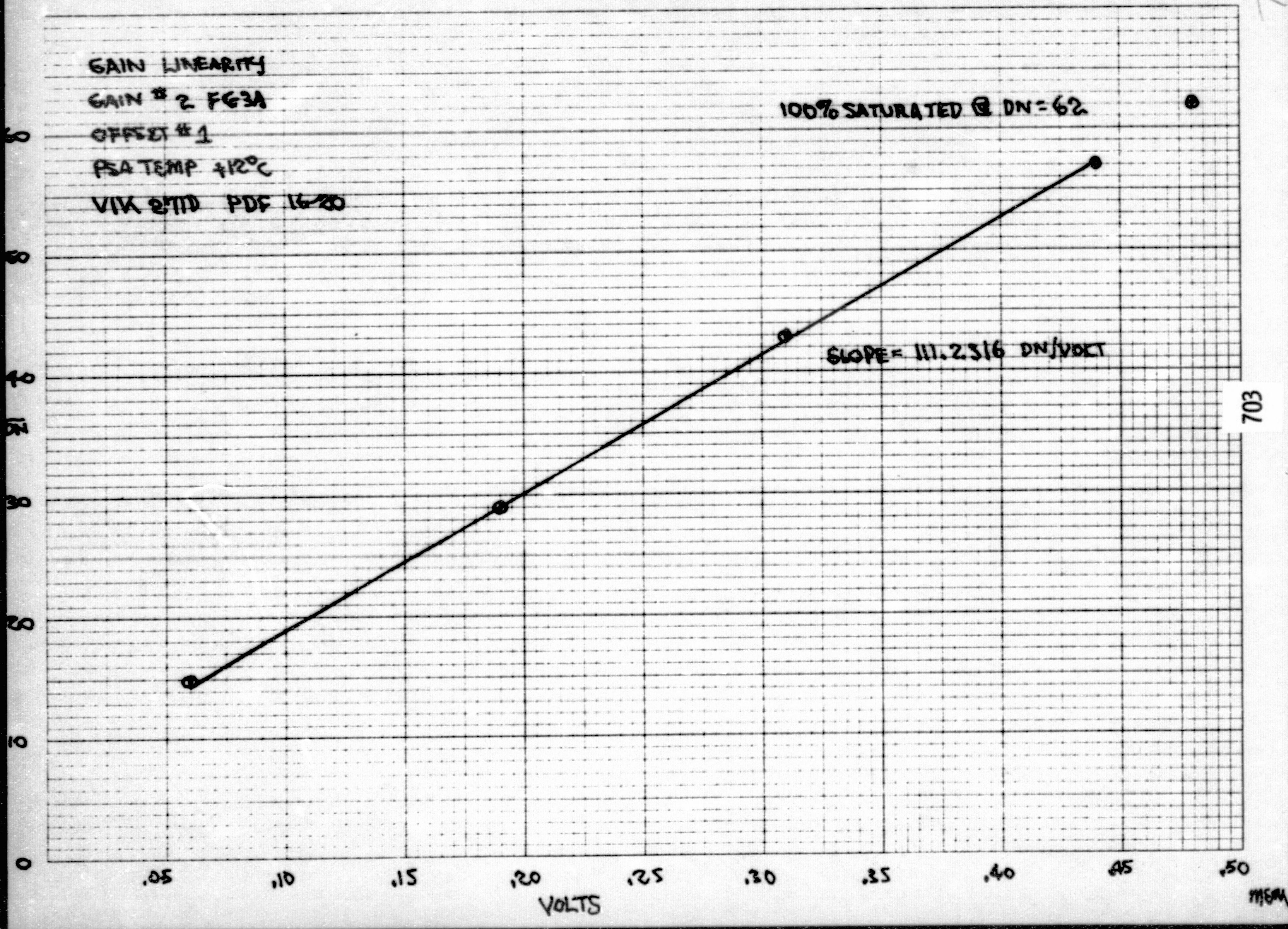
EUGENE DIETZGEN CO.
MADE IN U. S. A.



NO. 340A-10 DIETZGEN GRAPH PAPER
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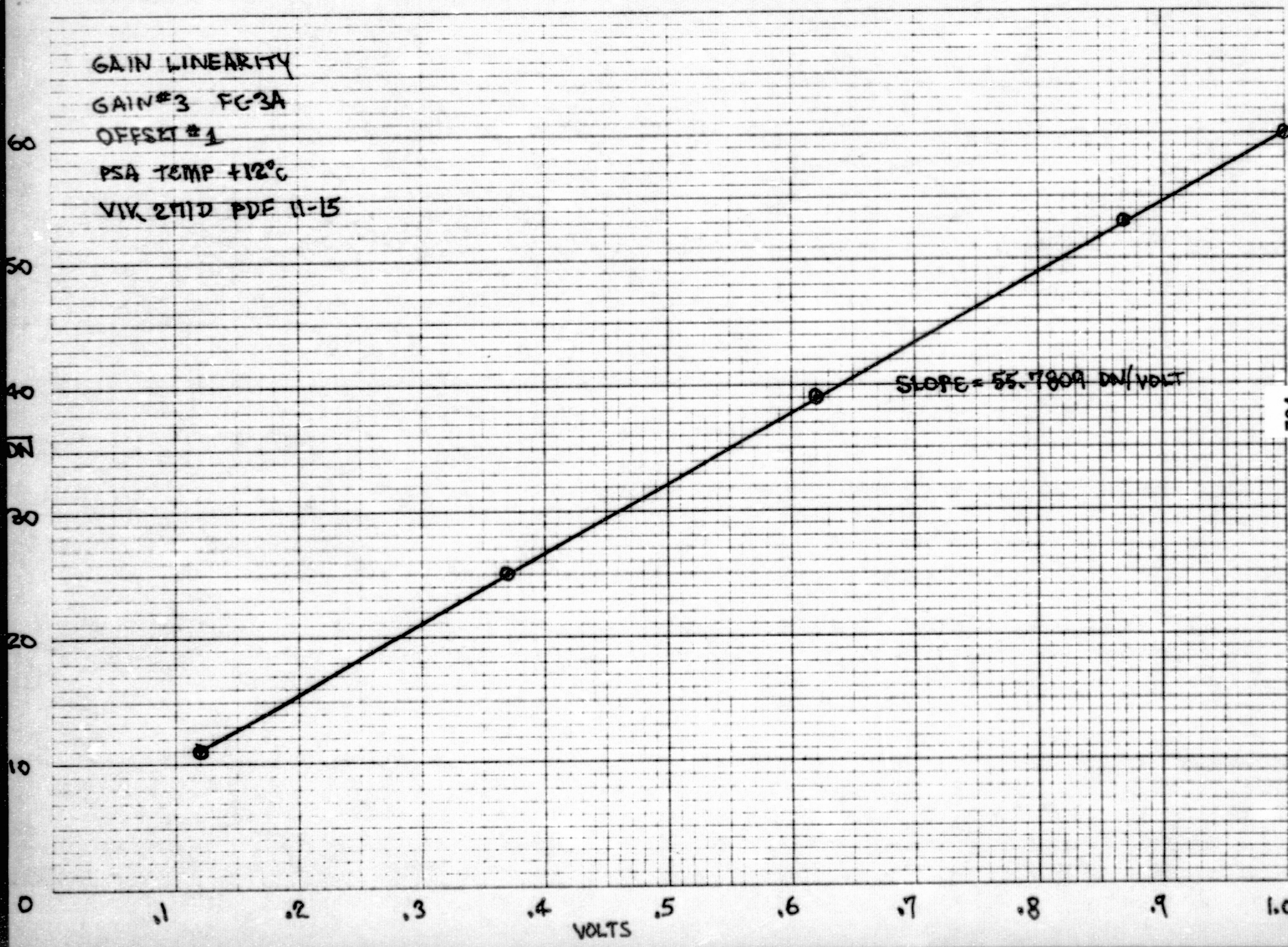
EUGENE DIETZGEN CO.
MADE IN U. S. A.

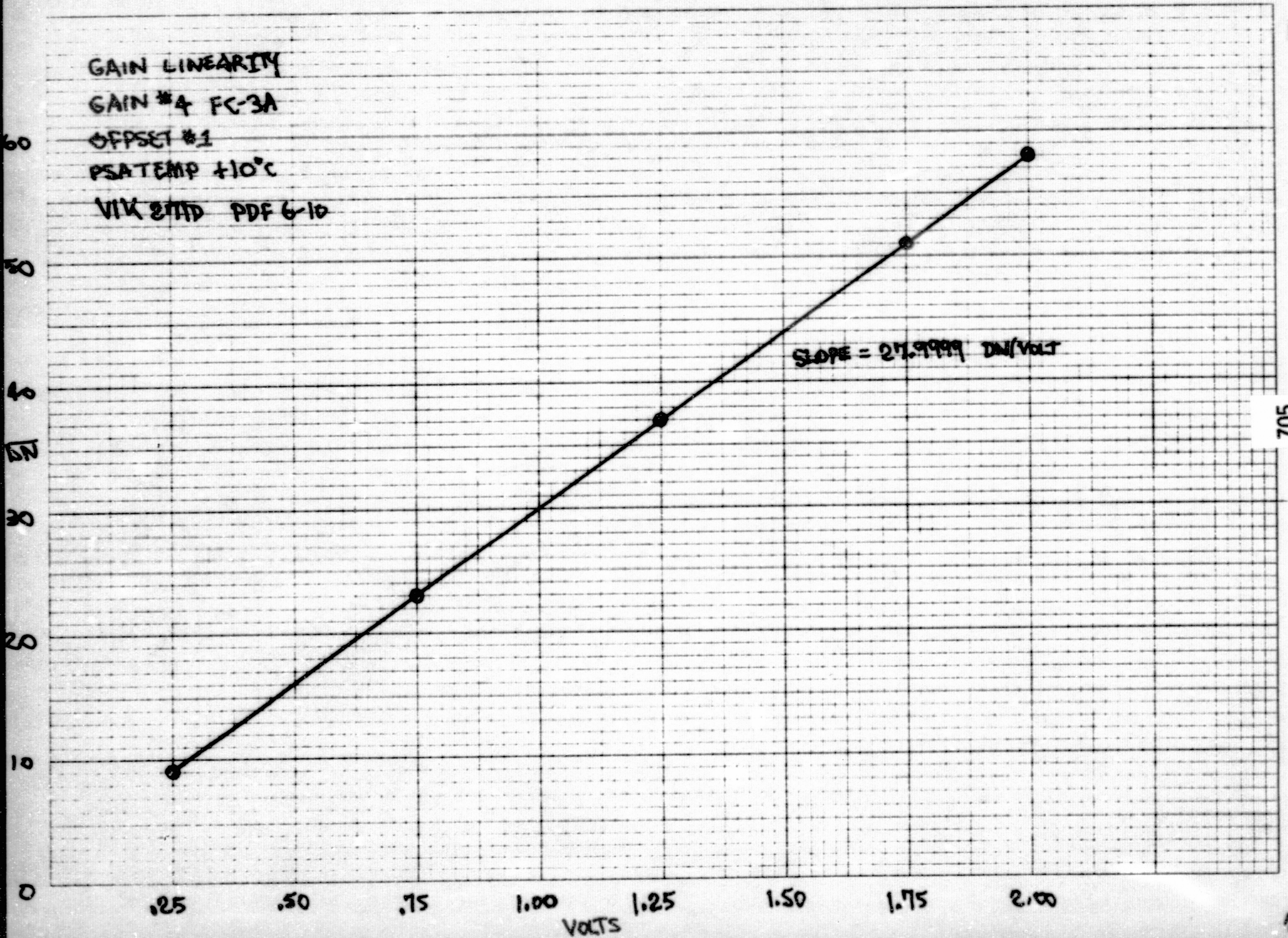
704



Mom

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.



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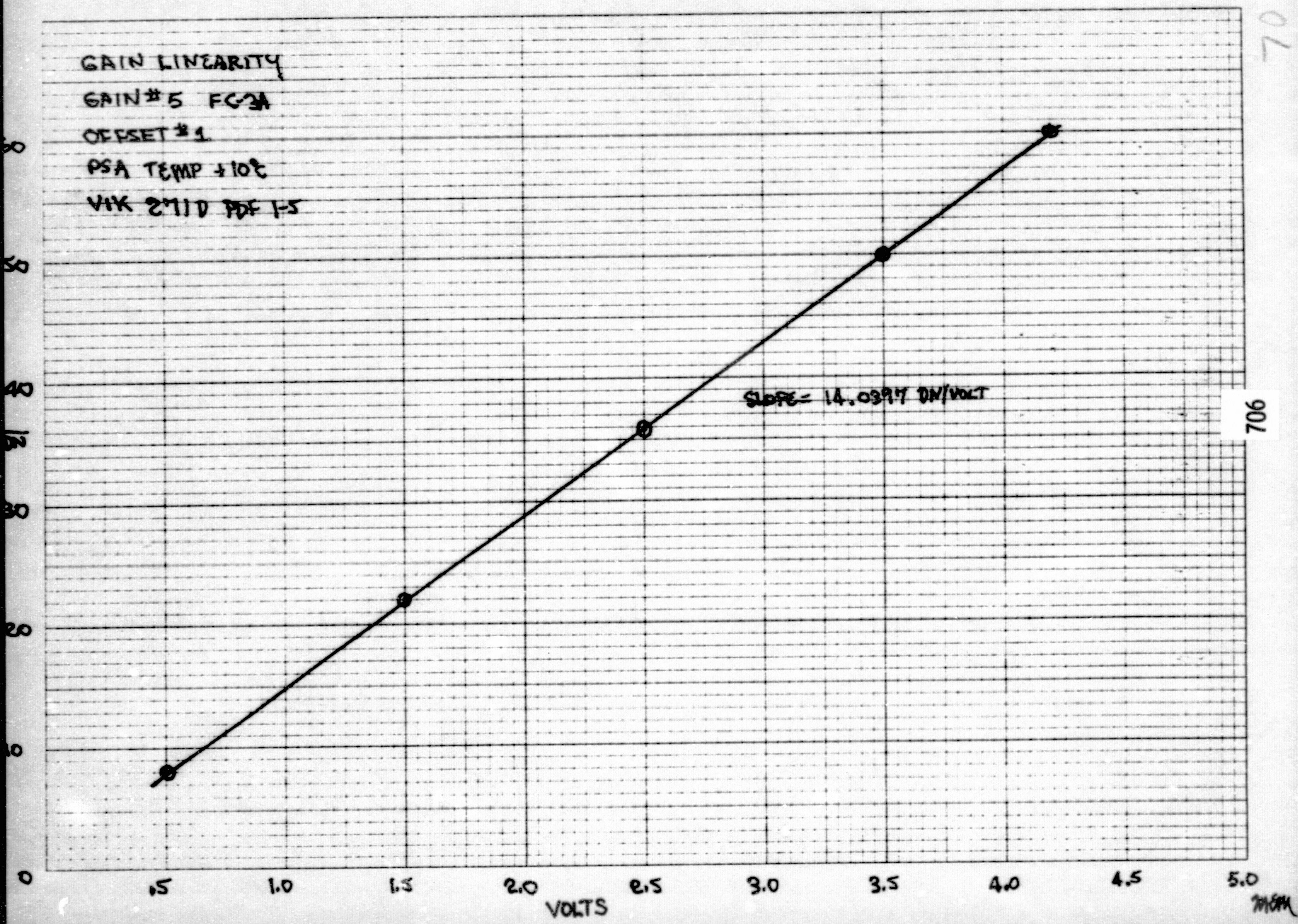
NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U. S. A.



706

L

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D FRAME COUNT: 26-30 FILES: 26-30

GAIN = 0 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.050	56.926		0.423	26
0.045	54.490		0.509	27
0.030	47.881		0.431	28
0.020	43.144		0.419	29
0.015	40.641		0.500	30

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D   FRAME COUNT: 21-25   FILES: 21-25

GAIN = 1   OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.200	60.413		0.493	21
0.170	53.920		0.318	22
0.155	50.208		0.408	23
0.090	35.529		0.539	24
0.030	22.251		0.434	25

708

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D   FRAME COUNT: 16-20   FILES: 16-20

GAIN = 2   OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	± SIGMA	FRAME COUNT
0.48	61.266*	0.513	16
0.44	57.000	0.0	17
0.31	42.304	0.461	18
0.19	29.000	0.0	19
0.06	14.667	0.472	20

* 23.1% saturated @ DN = 62

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D FRAME COUNT: 11-15 FILES: 11-15

GAIN = 3 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
1.00	60.000	0.0	11
0.87	52.394	0.490	12
0.62	38.989	0.111	13
0.37	24.946	0.229	14
0.12	11.000	0.0	15

710

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D FRAME COUNT: 6-10 FILES: 6-10

GAIN = 4 OFFSET = 1

PSA TEMP = -39°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	58.000		0.0	6
1.75	51.000		0.0	7
1.25	37.000		0.0	8
0.75	23.000		0.0	9
0.25	9.000		0.0	10

711

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK27OD FRAME COUNT: 1-5 FILES: 1-5

GAIN = 5 OFFSET = 1

PSA TEMP = -41°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	60.000		0.0	1
3.20	50.000		0.0	2
2.50	36.000		0.0	3
1.50	22.000		0.0	4
0.50	8.000		0.0	5

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D   FRAME COUNT: 26-30   FILES: 91-95

GAIN = 0   OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.050	54.109		0.667	26
0.045	54.492		0.625	27
0.030	47.422		0.640	28
0.020	42.866		0.465	29
0.015	40.514		[illegible].527	30

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D   FRAME COUNT: 21-25   FILES: 86-90

GAIN = 1   OFFSET = 1

PSA TEMP = -27°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.200	60.947		0.256	21
0.170	54.353		0.481	22
0.155	50.562		0.498	23
0.090	36.442		0.498	24
0.030	22.590		0.492	25

714

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D **FRAME COUNT:** 16-20 **FILES:** 81-85

GAIN = 2 **OFFSET =** 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN ±	SIGMA	FRAME COUNT
0.48	61.994*	0.129	16
0.44	57.046	0.245	17
0.31	42.959	0.203	18
0.19	29.027	0.189	19
0.06	14.998	0.049	20

* 99% saturated @ 62 DN

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D FRAME COUNT: 11-15 FILES: 76-80

GAIN = 3 OFFSET = 1

PSA TEMP = -29°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
1.00	60.000		0.0	11
0.87	53.000		0.0	12
0.62	39.000		0.0	13
0.37	25.000		0.0	14
0.12	11.000		0.0	15

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D FRAME COUNT: 6-10 FILES: 71-75

GAIN = 4 OFFSET = 1

PSA TEMP = -31°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	58.000		0.0	6
1.75	51.000		0.0	7
1.25	37.000		0.0	8
0.75	23.000		0.0	9
0.25	9.000		0.0	10

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK270D FRAME COUNT: 1-5 FILES: 66-70

GAIN = 5 OFFSET = 1

PSA TEMP = -31°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	60.000		0.0	1
3.50	50.000		0.0	2
2.50	36.000		0.0	3
1.50	22.000		0.0	4
0.50	8.000		0.0	5

718

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK271D   FRAME COUNT: 26-30   FILES: 26-30

GAIN = 0   OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.050	56.274		0.473	26
0.045	54.112		0.418	27
0.030	47.192		0.446	28
0.020	41.989		1.620*	29
0.015	39.917		0.403	30

* Two Lobed Histogram

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK271D FRAME COUNT: 21-25 FILES: 21-25

GAIN = 1 OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.200	61.151*		0.371	21
0.170	54.653		0.478	22
0.155	50.990		0.115	23
0.090	36.788		0.411	24
0.030	23.004		0.068	25

*14% saturated @ 62 DN

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK271D FRAME COUNT: 16-20 FILES: 16-20

GAIN = 2 OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
0.48	62.000*		0.0	16
0.44	57.024		0.194	17
0.31	42.991		0.100	18
0.19	29.000		0.0	19
C.06	14.959		0.199	20

*100% saturated @ 62 DN

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK271D FRAME COUNT: 11-15 FILES: 11-15

GAIN = 3 OFFSET = 1

PSA TEMP = +12°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
1.00	60.0		0.0	11
0.87	53.0		0.0	12
0.62	39.0		0.0	13
0.37	25.0		0.0	14
0.12	11.0		0.0	15

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK271D FRAME COUNT: 6-10 FILES: 6-10

GAIN = 4 OFFSET = 1

PSA TEMP = +10°C

SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
2.00	58.0		0.0	6
1.75	51.0		0.0	7
1.25	37.0		0.0	8
0.75	23.0		0.0	9
0.25	9.0		0.0	10

723

FC-3A THERMAL CAL. TEST
GAIN LINEARITY

TAPE: VIK271D FRAME COUNT: 1-5 FILES: 1-5

GAIN = 5 OFFSET = 1

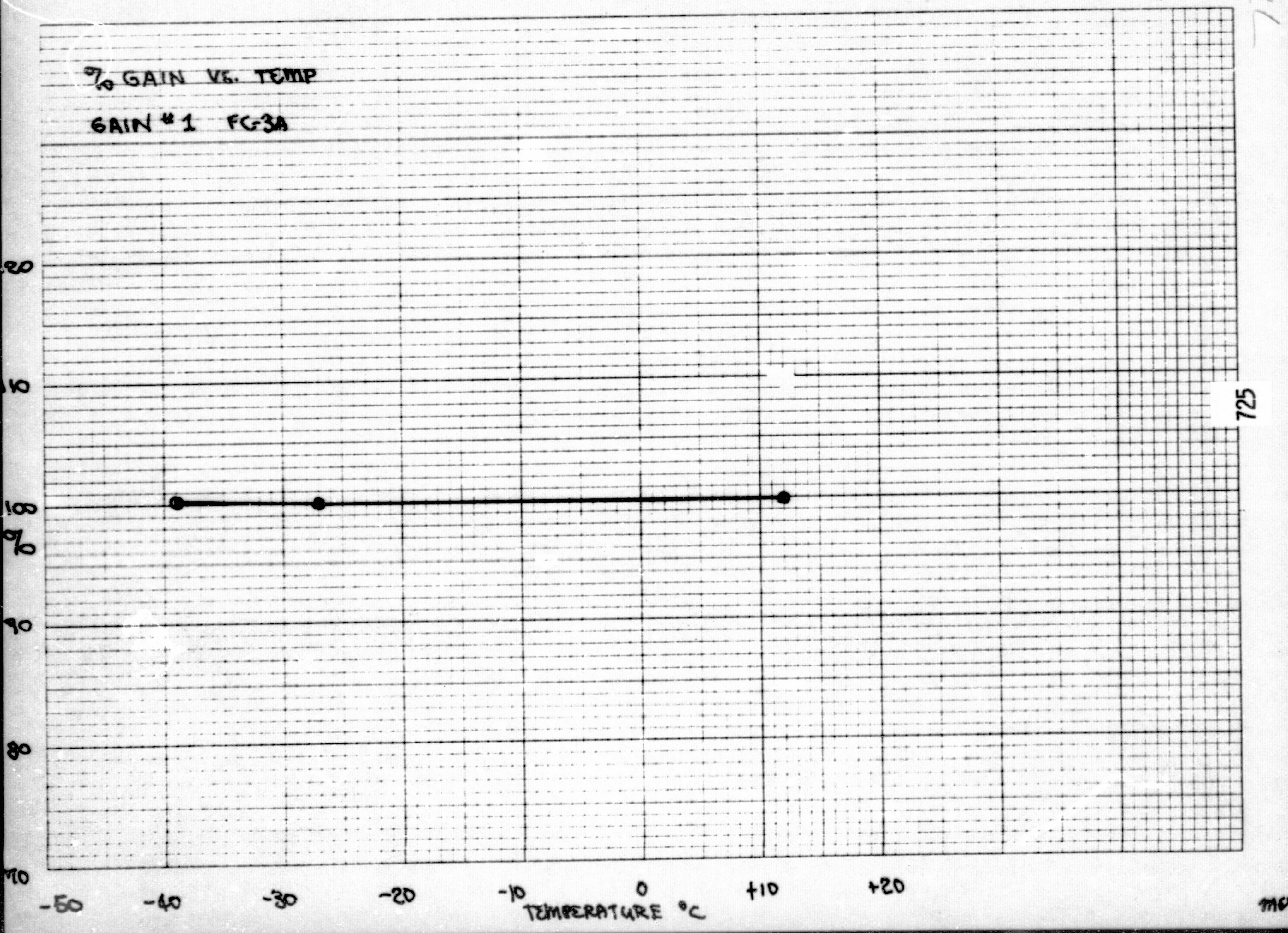
PSA TEMP = +10°C

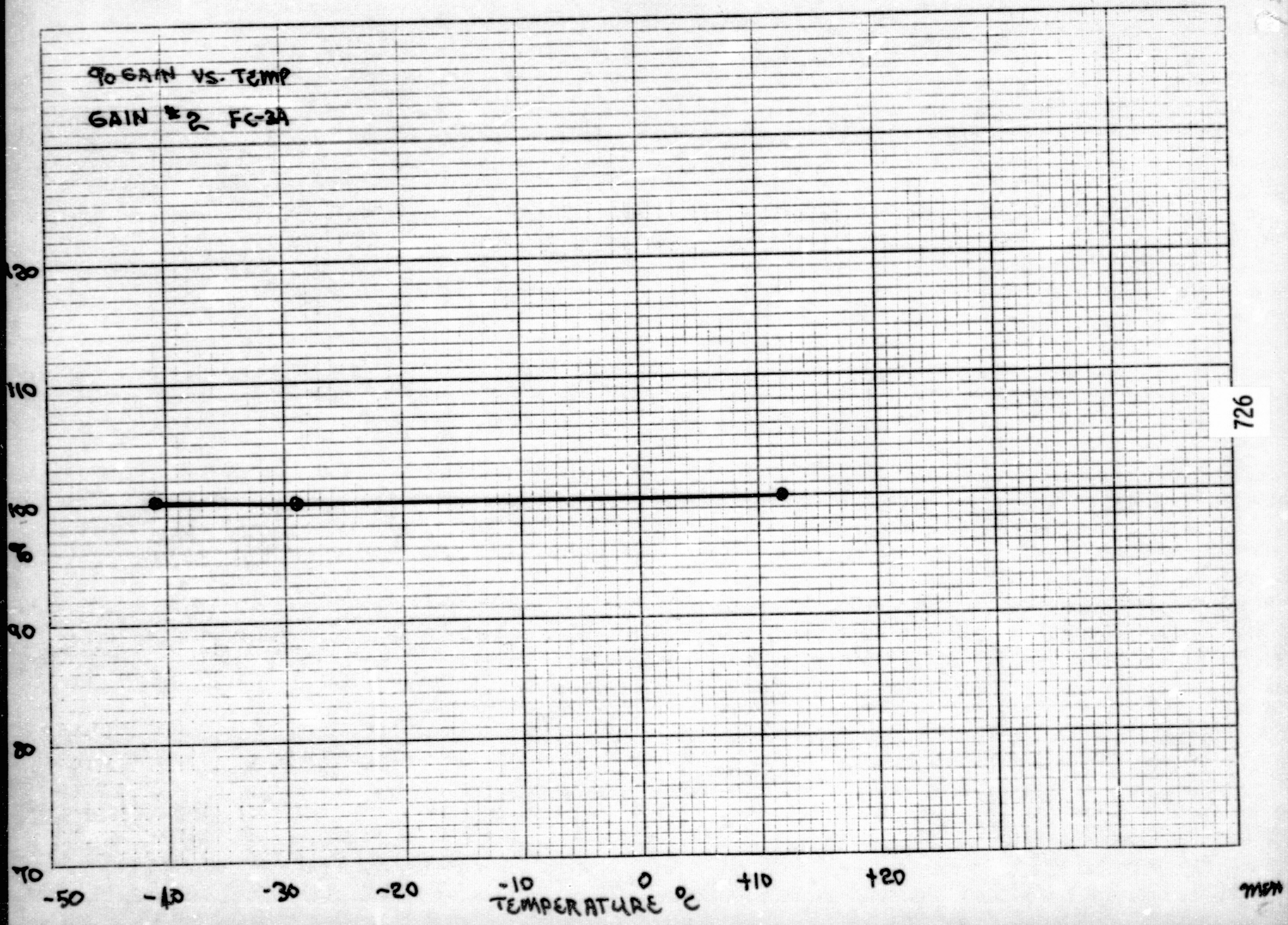
SURVEY DIODE SELECT

VOLTS	DN	±	SIGMA	FRAME COUNT
4.20	60.0		0.0	1
3.50	50.0		0.0	2
2.50	36.0		0.0	3
1.50	22.0		0.0	4
0.50	8.0		0.0	5

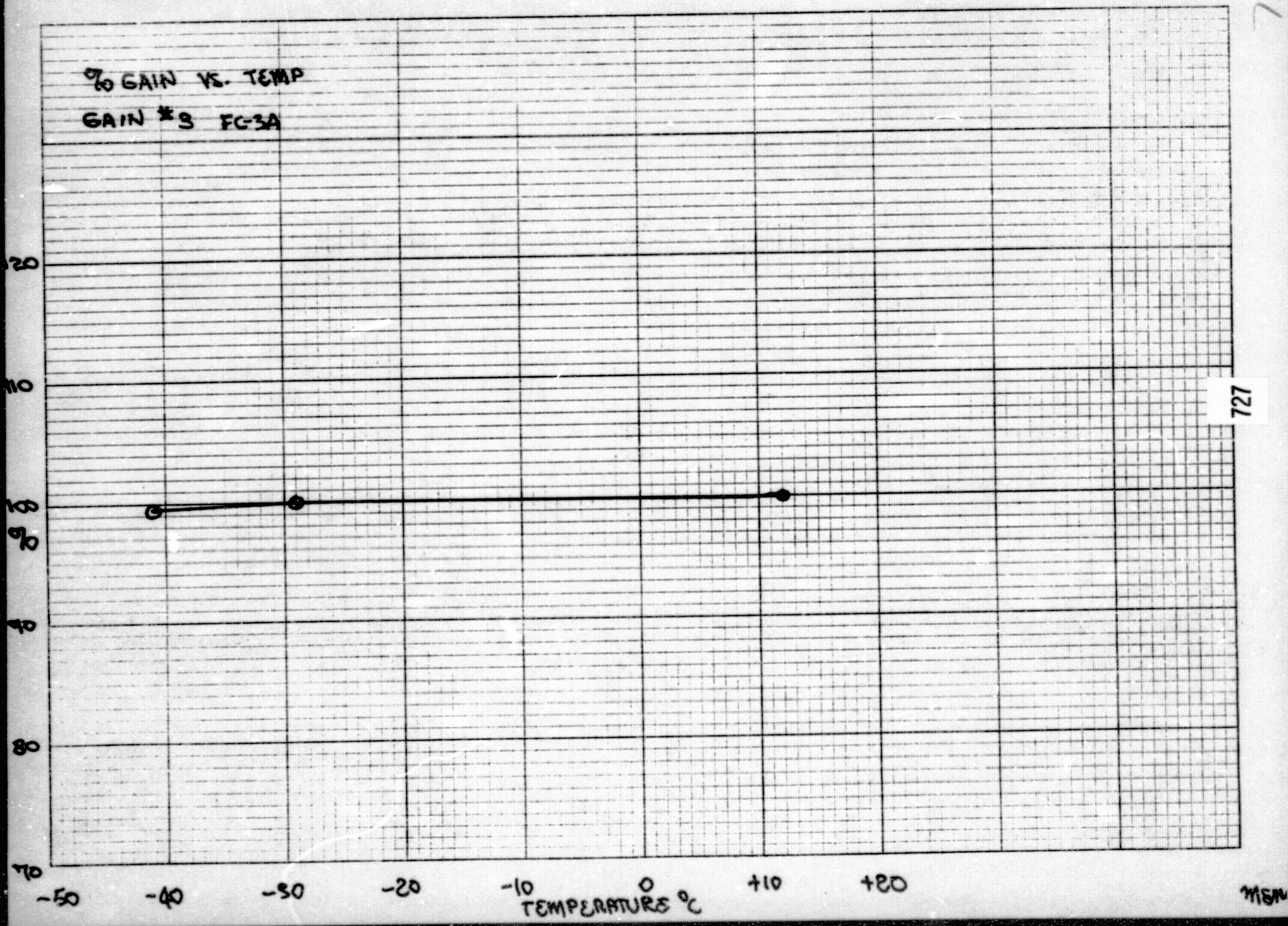
72x

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH
EUGENE DIETZGEN CO.
MADE N. J. S. A.




% GAIN VS. TEMP
GAIN #2 FC-2A
120
110
100
%
90
80
70
-50
-40
-30
-20
-10
0
+10
+20
TEMPERATURE °C
MEN

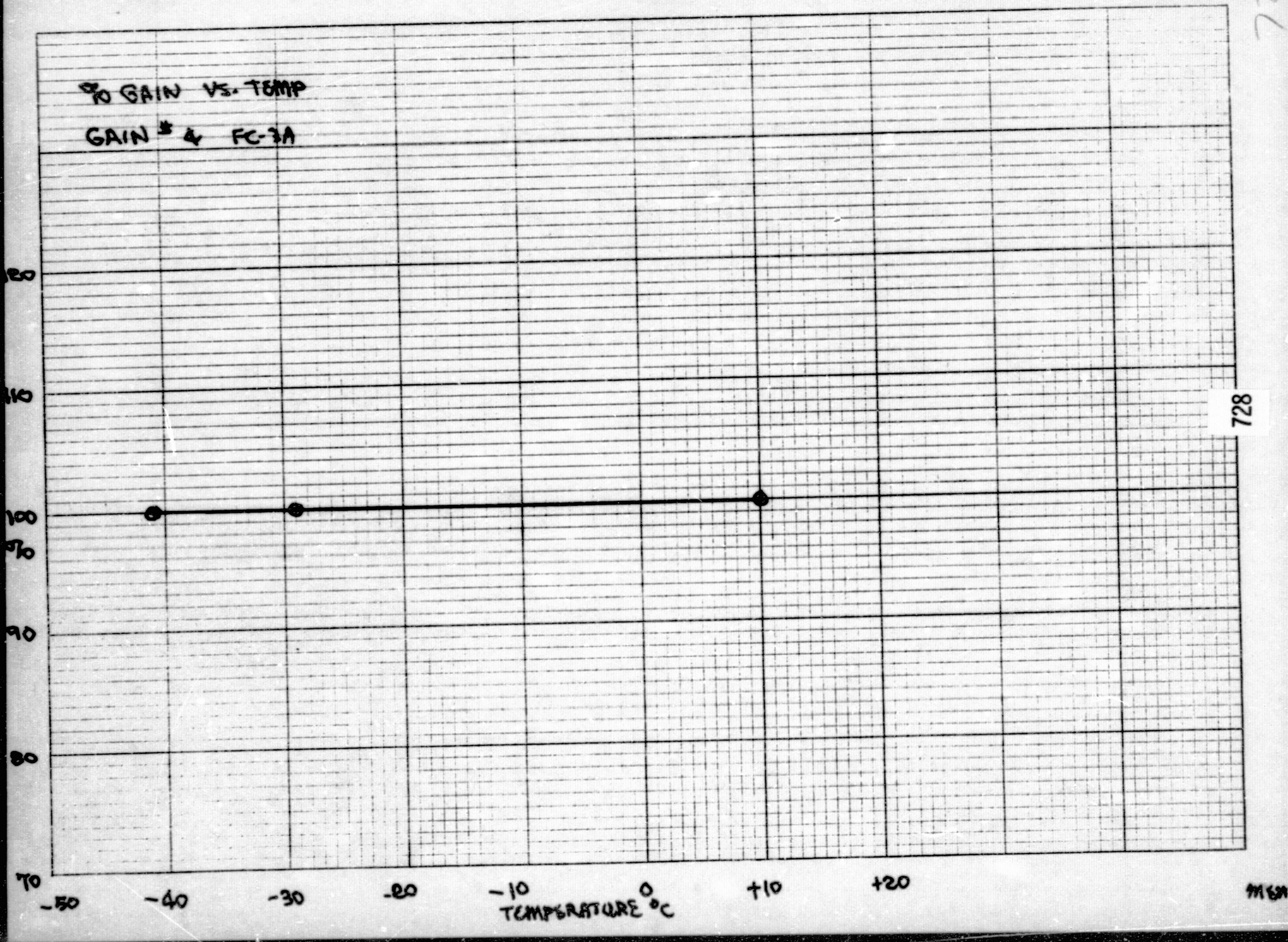
10 X 10 TO THE INCH 46 0702
KEUFFEL & ESSER CO.



727

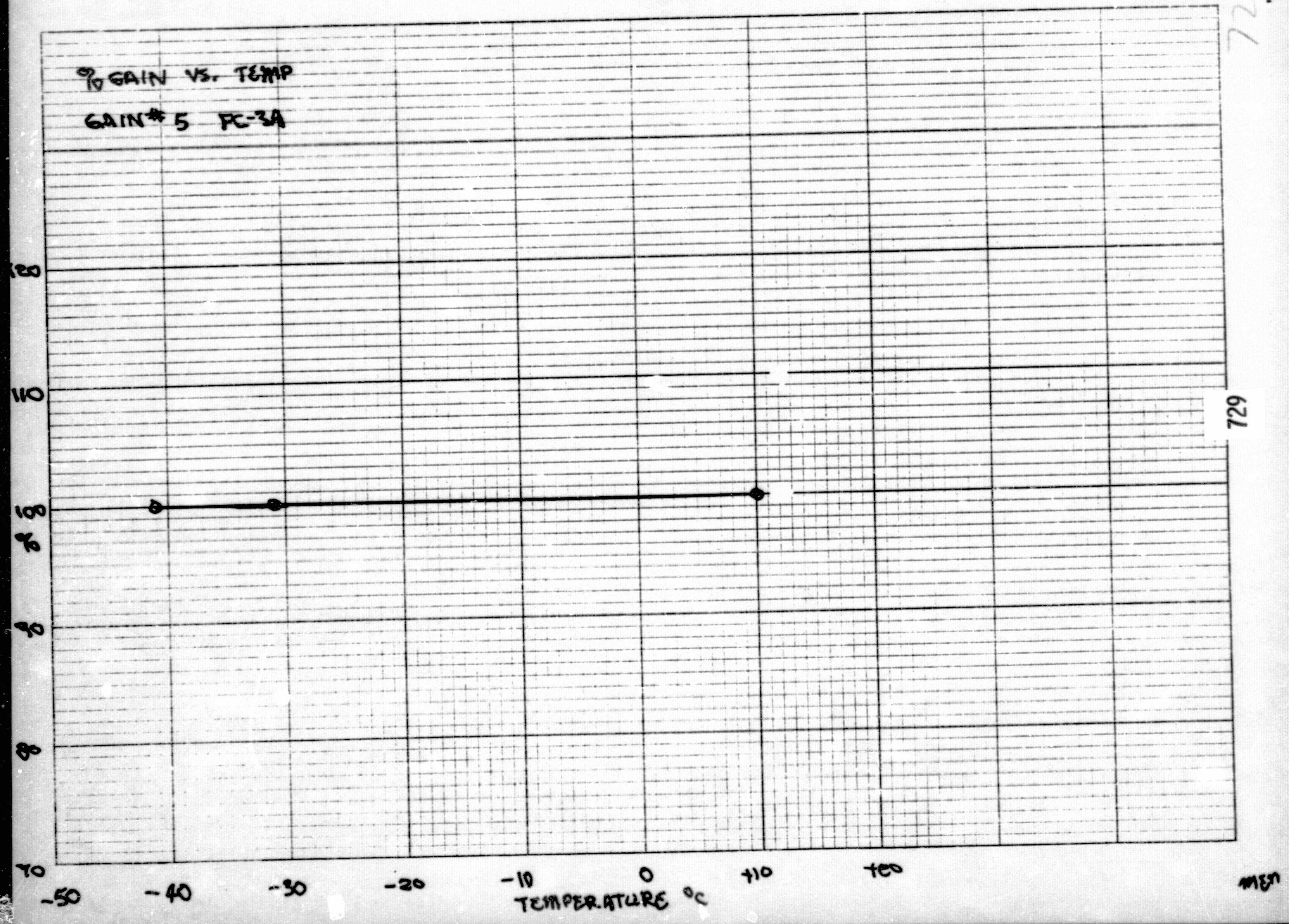
10 X 10 TO THE INCH 46 0702
KEUFFEL & ESSER CO.

728

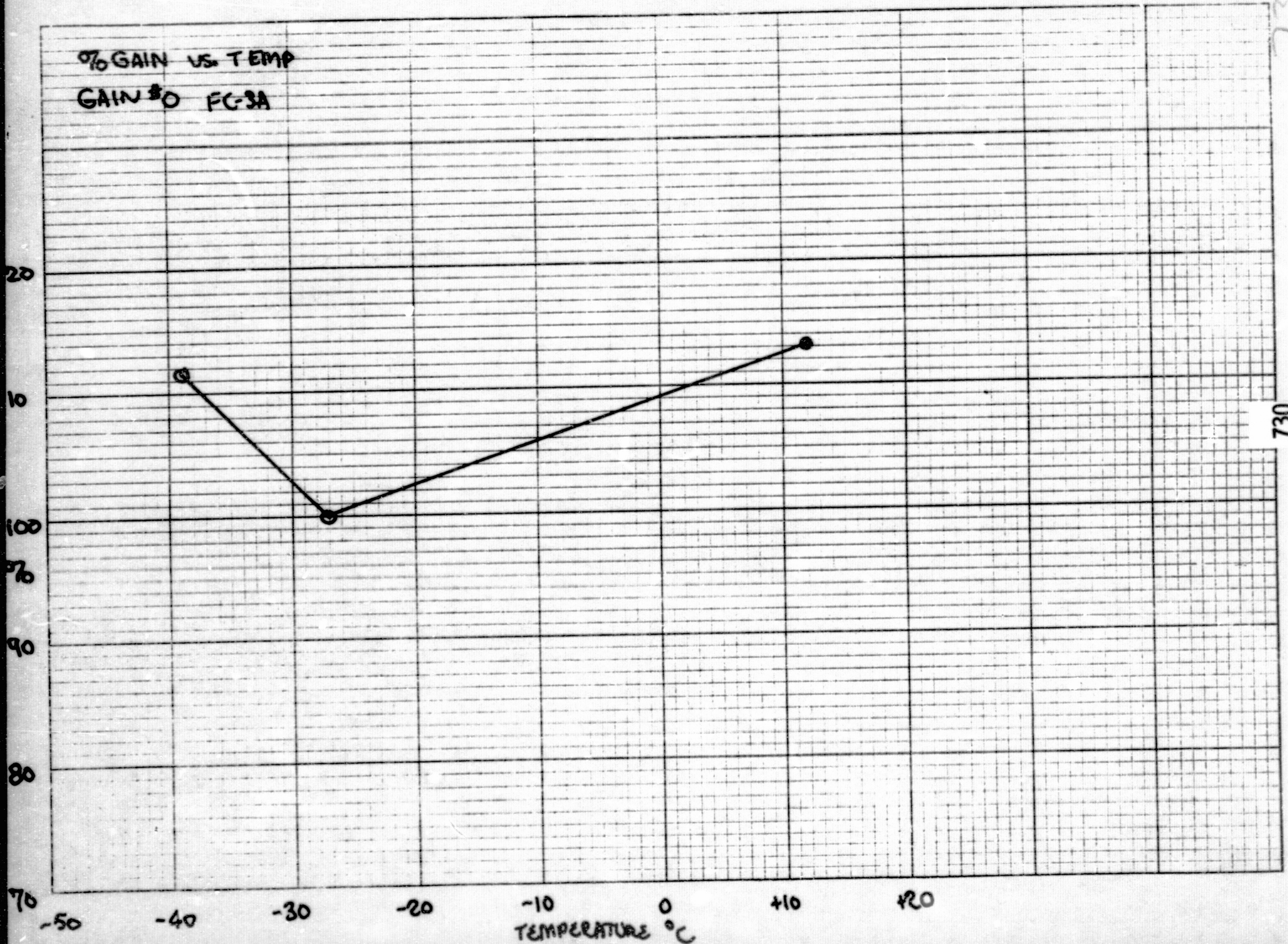


728

KEUFFEL & ESSER CO. 10 X 10 TO THE INCH 46 0702



729



% GAIN VS. TEMP
GAIN #0 FC-3A
120
110
100
%
90
80
70
-50
-40
-30
-20
-10
0
+10
+20
TEMPERATURE °C

730

FC-3A THERMAL CAL TEST

Gain as a function of Temperature

Gain Setting	Gain/Temp	Gain/Temp	Gain/Temp
0	460.9187/-39°C	413.3191/-27°C	467.9094/+12°C
1	225.2655/-39°C	225.0350/-27°C	224.727[illegible]/+12°C
2	111.3538/-41°C	111.1463/-29°C	111.2316/+12°C
3	55.4826/-41°C	55.7809/-29°C	55.7809/+12°C
4	27.9999/-41°C	27.9999/-29°C	27.9999/+10°C
5	14.0397/-41°C	14.0397/-31°C	14.0397/+10°C

731

FC-3A THERMAL CAL TEST

%Gain as a function of Temperature
(100% = Middle Temp)

Gain Setting	%Gain/Temp	%Gain/Temp	%Gain/Temp
0	111.5164/-39°C	100.0/-27°C	113.2098/+12°C
1	100.1024/-39°C	100.0/-27°C	99.8635/+12°C
2	100.1867/-41°C	100.0/-29°C	100.0767/+12°C
3	99.4652/-41°C	100.0/-29°C	100.0/+12°C
4	100.0/-41°C	100.0/-29°C	100.0/+10°C
5	100.0/-41°C	100.0/-31°C	100.0/+10°C

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM

DATE: 1/31/75

CALIBRATION RUN FC-3A CAL-BOT OFFSET TEST

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

1. Table of Offsets in Millivolts
2. Graph of Millivolts vs. Offset Number
3. The Mean Millivolts/Offset Step

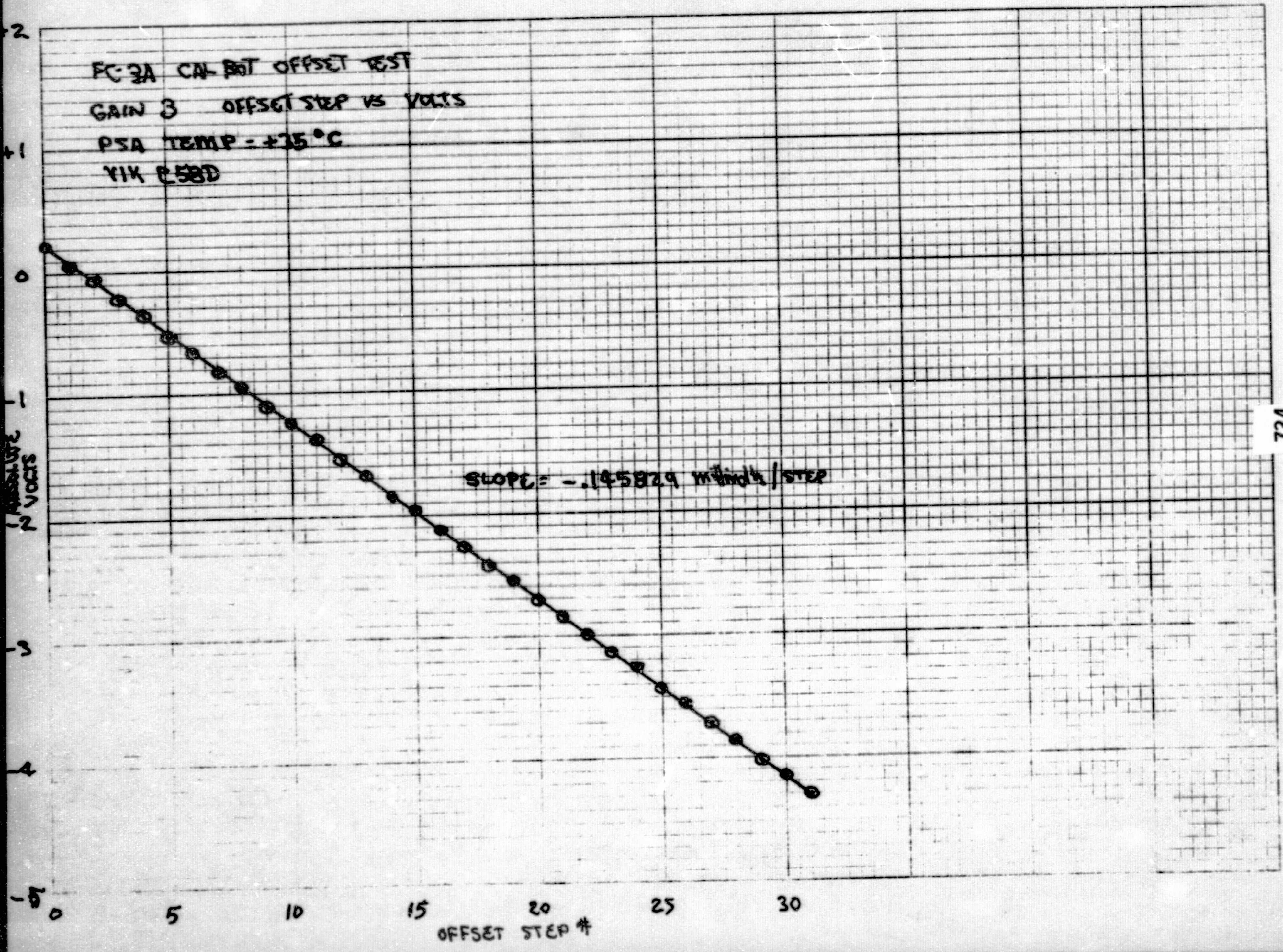
TEST DESCRIPTION D.C. voltage was input to the test connector. The camera was operated at a gain of 3. A PDF was taken at each offset, adjusting the D.C. voltage every 5 frames to avoid saturation (repeating the last offset when this was done).

DATA PROCESSING DESCRIPTION Mean DN was listed for each of the 37 PDF's (SL = 80, SS = 200, NL = 30, NS = 30). These DN's were divided by the camera gain (55.7809) to generate an "offset ladder" for each analog input. (End points were set equal to give a continuous relationship for graphing.) A least squares fit was used to arrive at the slope or mean millivolts/offset step.

ANALYST Michael E. Morrill

APPROVAL Michael R Wolf

K+E 10 X 10 TO THE INCH 46 0702
7 X 10 INCHES
KEUFFEL & ESSER CO.



734

MSN

CAL-BOT OFFSET TEST

CAMERA FC-3A

SLOPE = -.145829 millivolts/STEP

GAIN VALUE= 55.780930

OFFSET NUMBER	DN VALUES	OFFSET IN VOLTS
0	57.000	0.221855
1	49.000	0.078437
2	40.996	-0.065053
3	32.906	-0.210085
4	24.000	-0.369745
5	16.000	-0.513163
5	55.999	-0.513164
6	47.456	-0.666316
7	39.000	-0.817908
8	31.784	-0.947272
9	23.002	-1.104709
10	15.663	-1.236278
10	55.000	-1.236277
11	46.997	-1.379749
12	38.878	-1.525301
13	30.147	-1.681824
14	22.000	-1.827877
15	14.000	-1.971295
15	53.960	-1.971294
16	45.443	-2.123981
17	37.019	-2.275001
18	29.000	-2.418759
19	21.000	-2.562178
20	13.000	-2.705596
20	52.000	-2.705595
21	44.000	-2.849013
22	36.000	-2.992432
23	28.000	-3.135850
24	20.000	-3.279268
25	12.000	-3.422687
25	57.000	-3.422687
26	49.000	-3.566104
27	40.999	-3.709541
28	32.332	-3.864917
29	24.073	-4.012978
30	16.001	-4.157687
31	8.000	-4.301124

OFFSET BDT# 8
CAMERA FC-3A TAPE VIK 258 D
PSA TEMP = +35°!

OFFSET #	GAIN	$\overline{DN}$	PDF	σ	ANALOGU VOLTS				
0	3	57.000	95	0.0		GAIN#3			
1		49.000		0.0		55.780930			
2		40.996		0.075					
3		32.906		0.293					
4		24.000		0.0					
5		16.000		0.0					
5		55.999		0.047					
6		47.456		0.591					
7		39.000		0.0					
8		31.784		0.513					
9		23.002		0.053					
10		15.663		0.582					
10		55.000		0.0					
11		46.997		0.067					
12		38.878		0.328					
13		30.147		0.355					
14		22.000		0.0					
15		14.000		0.0					
15		53.960		0.283					
16		45.443		0.610					
17		37.019		0.176					
18		29.000		0.0					
19		21.000		0.0					
20		13.000		0.0					
20		52.000		0.0					
21		44.000		0.0					
22		36.000		0.0					
23		28.000		0.0					
24		20.000		0.0					
25		12.000		0.0					
25		57.000		0.0					
26		49.000		0.0					
27		40.999		0.047					
28		32.332		0.472					
29		24.073		0.262					
30		16.001		0.039					
31		8.000	131	0.0					

736

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM

DATE: 03/27/75

CALIBRATION RUN COHERENT NOISE TEST, FC-3A CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

One-dimensional Fourier transforms of the coherent noise test data from the cal. B.O.T. at Itek.

Also included is the analysis of data for the thermal chamber test.

Results Summary attached.

TEST DESCRIPTION Two dark current frames were taken with each of the BB and color diodes, (dark current subtractor on/off). The gain was constant and offset changed as necessary.

DATA PROCESSING DESCRIPTION One-dimensional Fourier transforms of each frame were computed for all lines after line 64.

ANALYST David L. Atwood

APPROVAL Mike Wolf

Coherent Noise Test

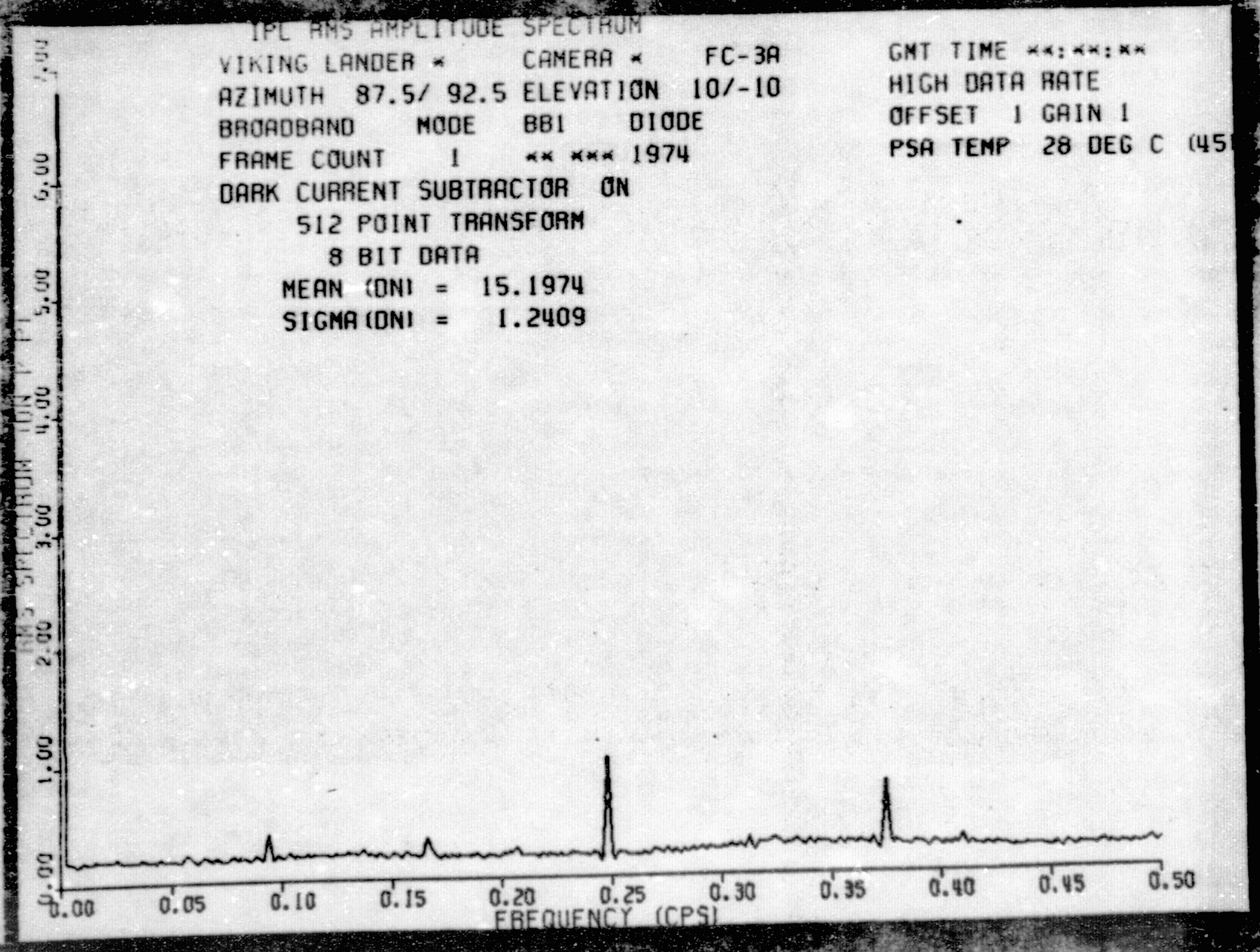
FC-3A Camera @ Itek

Results Summary:

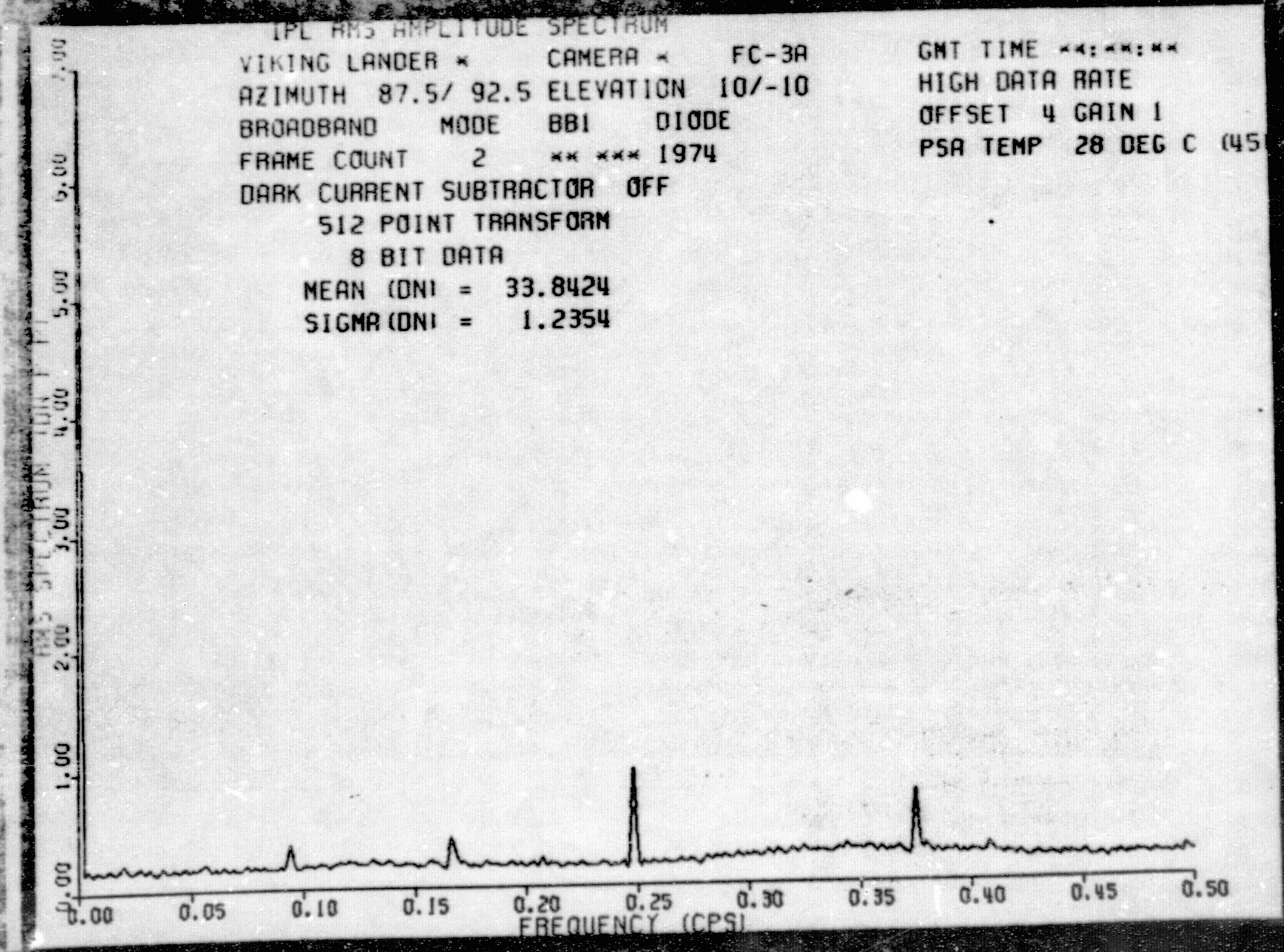
The low data rate frames (#23-26) for FC-3A coherent noise test data also have a very pronounced vertical streaking. Hard copies of these frames, after a severe linear stretch, are included with this report in addition to the Fourier transform data. This same problem occurred in the low data rate frames for FC-2B coherent noise test data.

From the attached Fourier transform data it is obvious that coherent noise frequencies are a reality in most of the frames from this test.

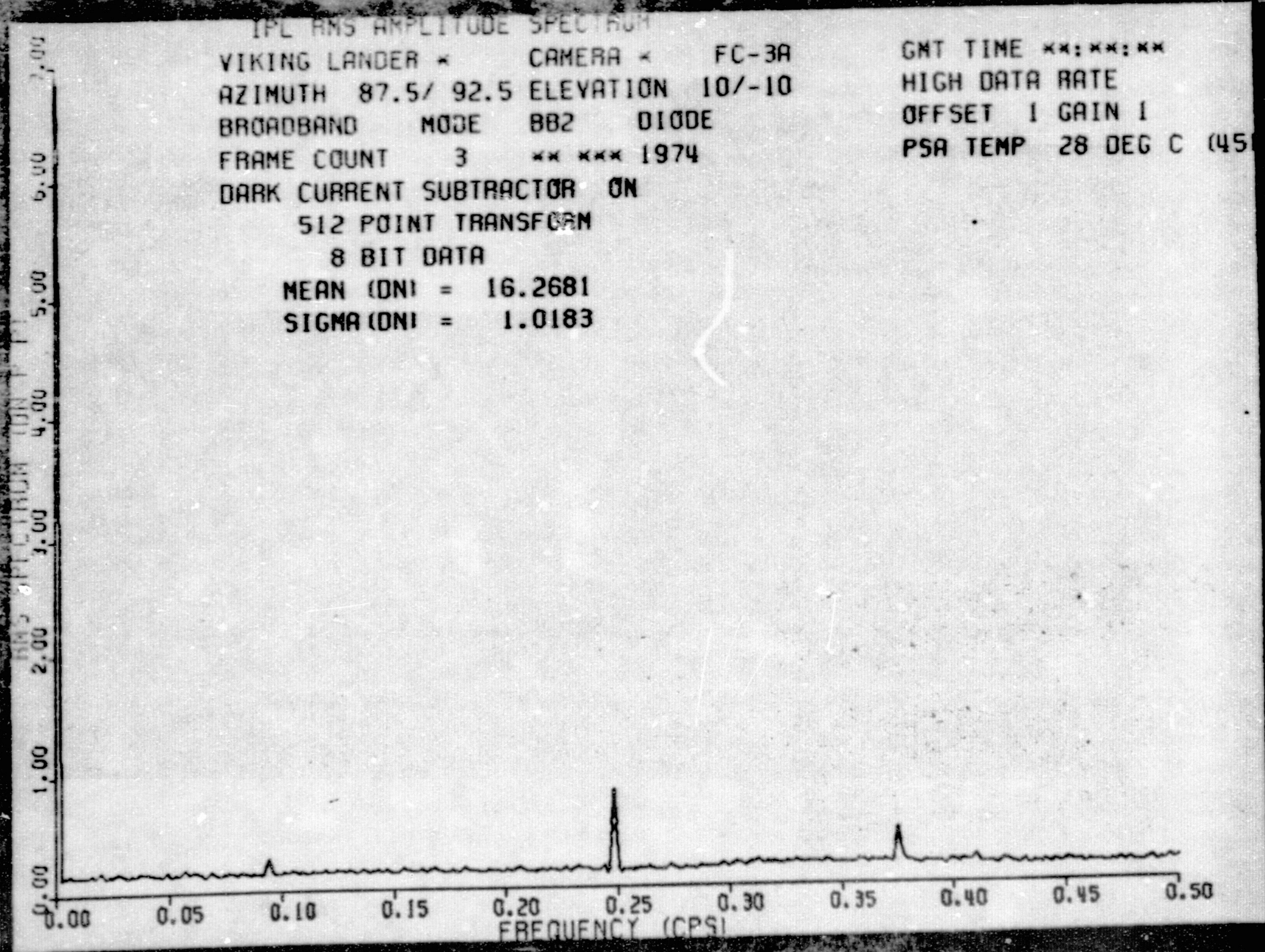
This is also true of the coherent noise test frames for FC-3A taken in the thermal chamber at Itek. The analysis results are included in this report.

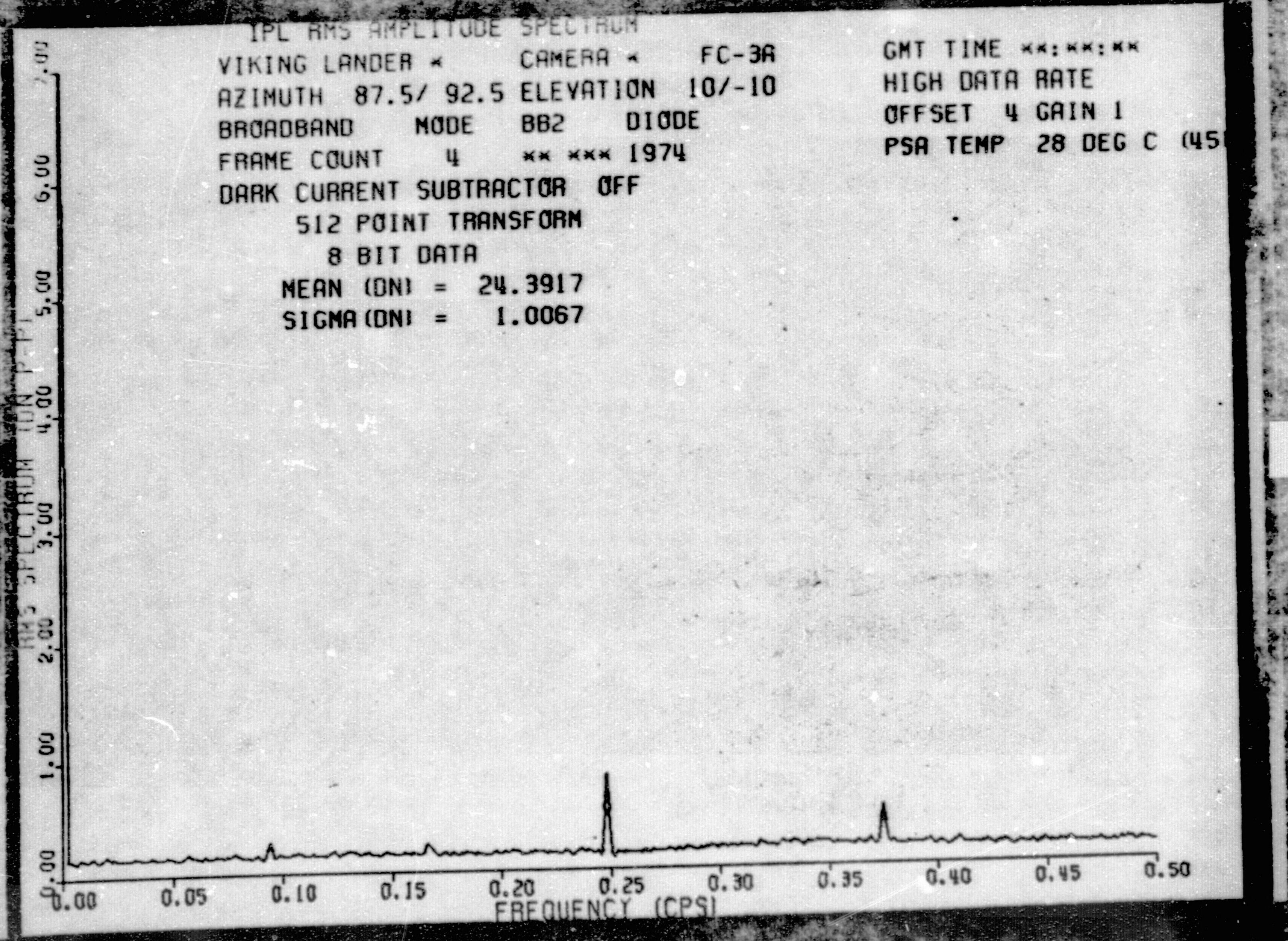


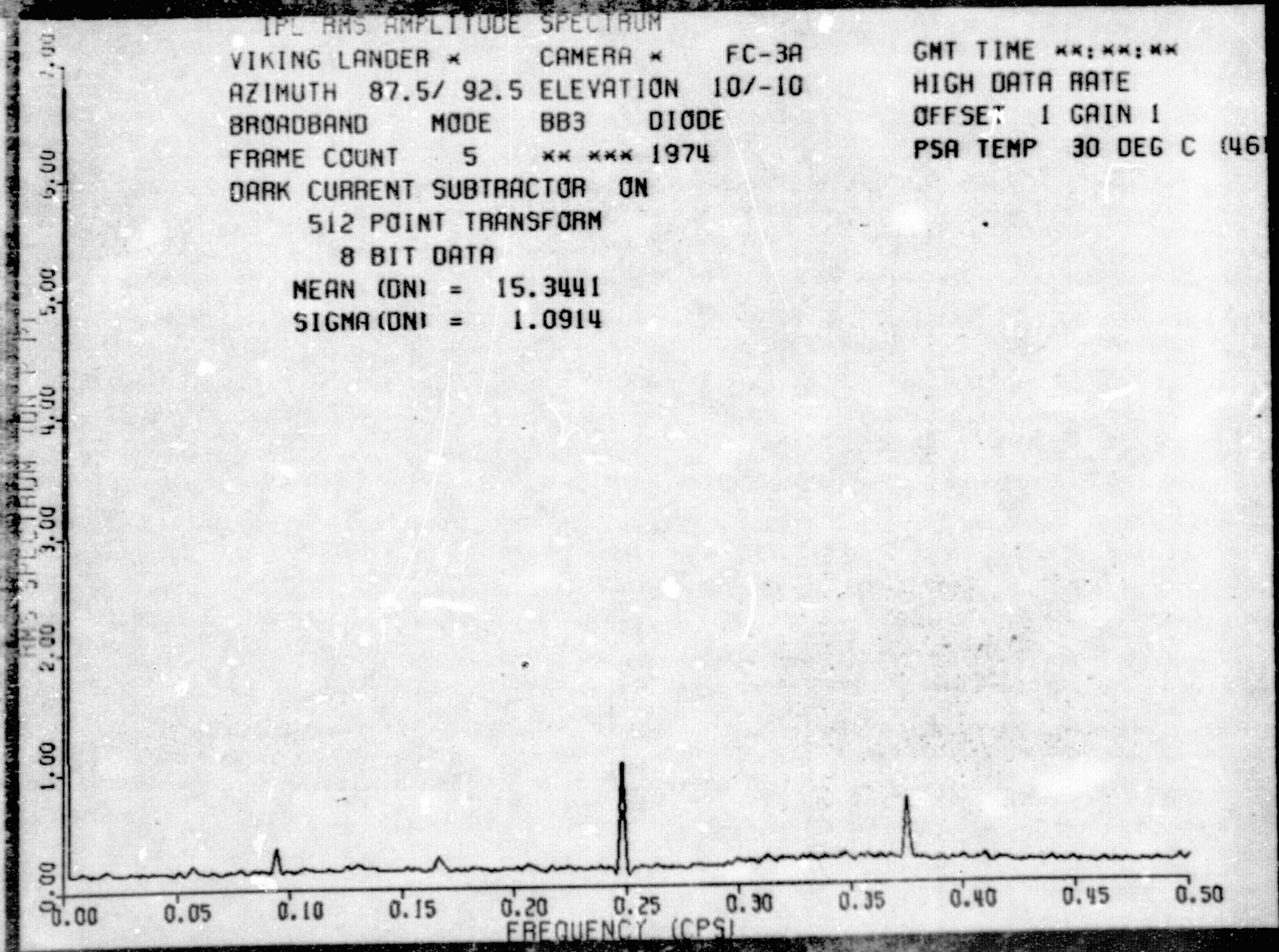
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 1 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.1974
SIGMA(DN) = 1.2409
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C (45
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 2 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 33.8424
SIGMA(DN) = 1.2354
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

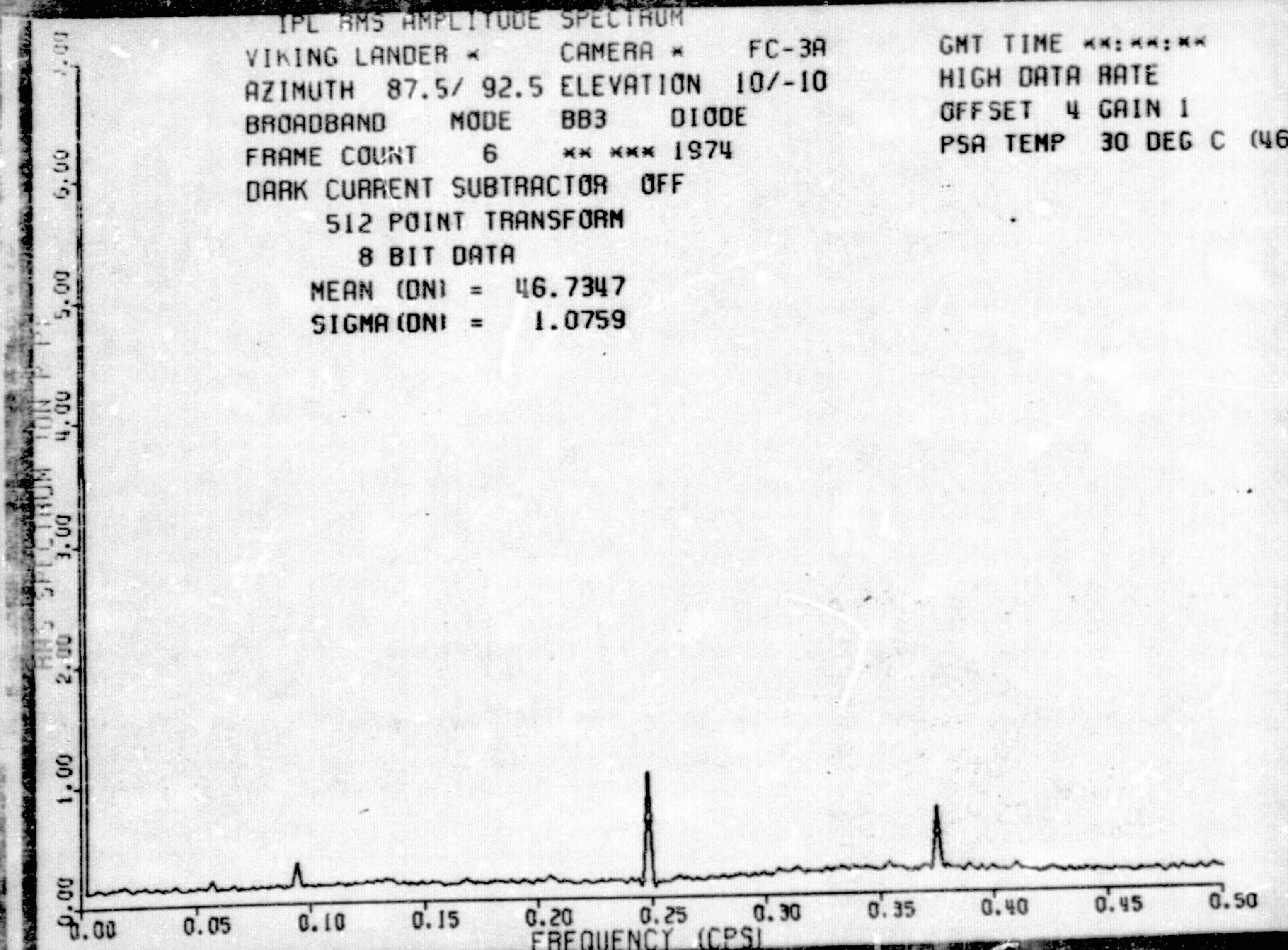
740

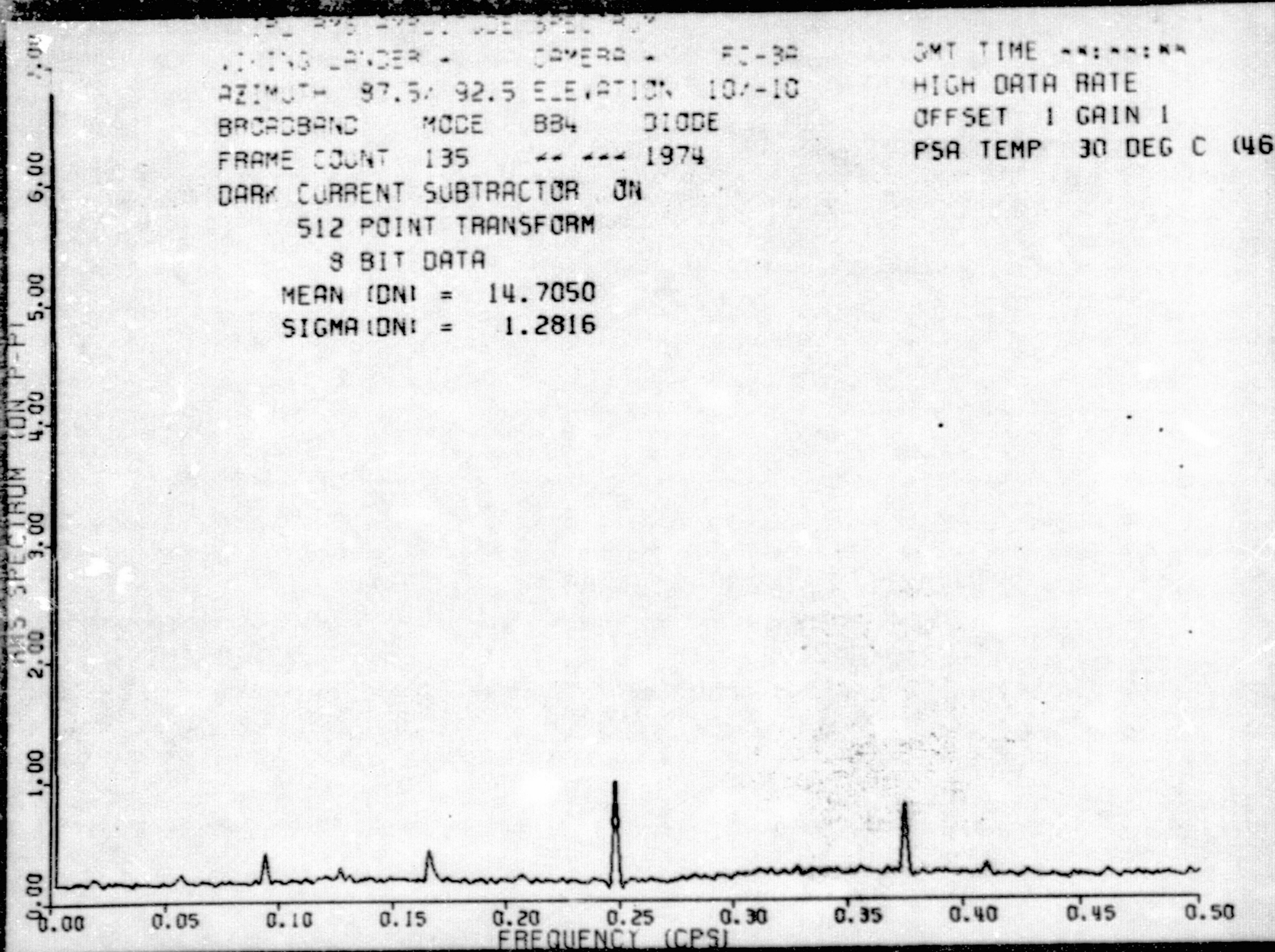

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 3 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.2681
SIGMA(DN) = 1.0183
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 28 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 4 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 24.3917
SIGMA(DN) = 1.0067
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 28 DEG C (45
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

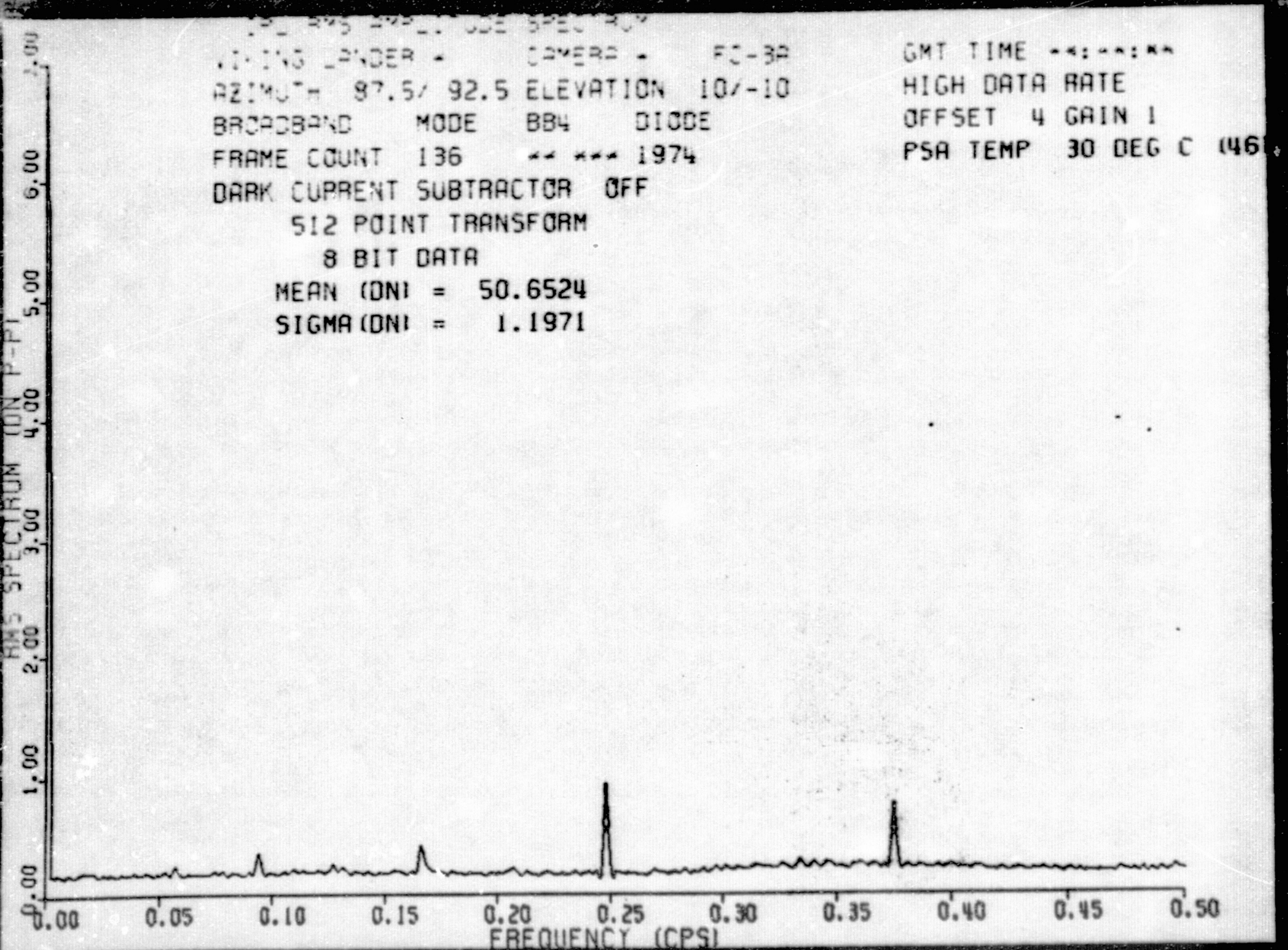


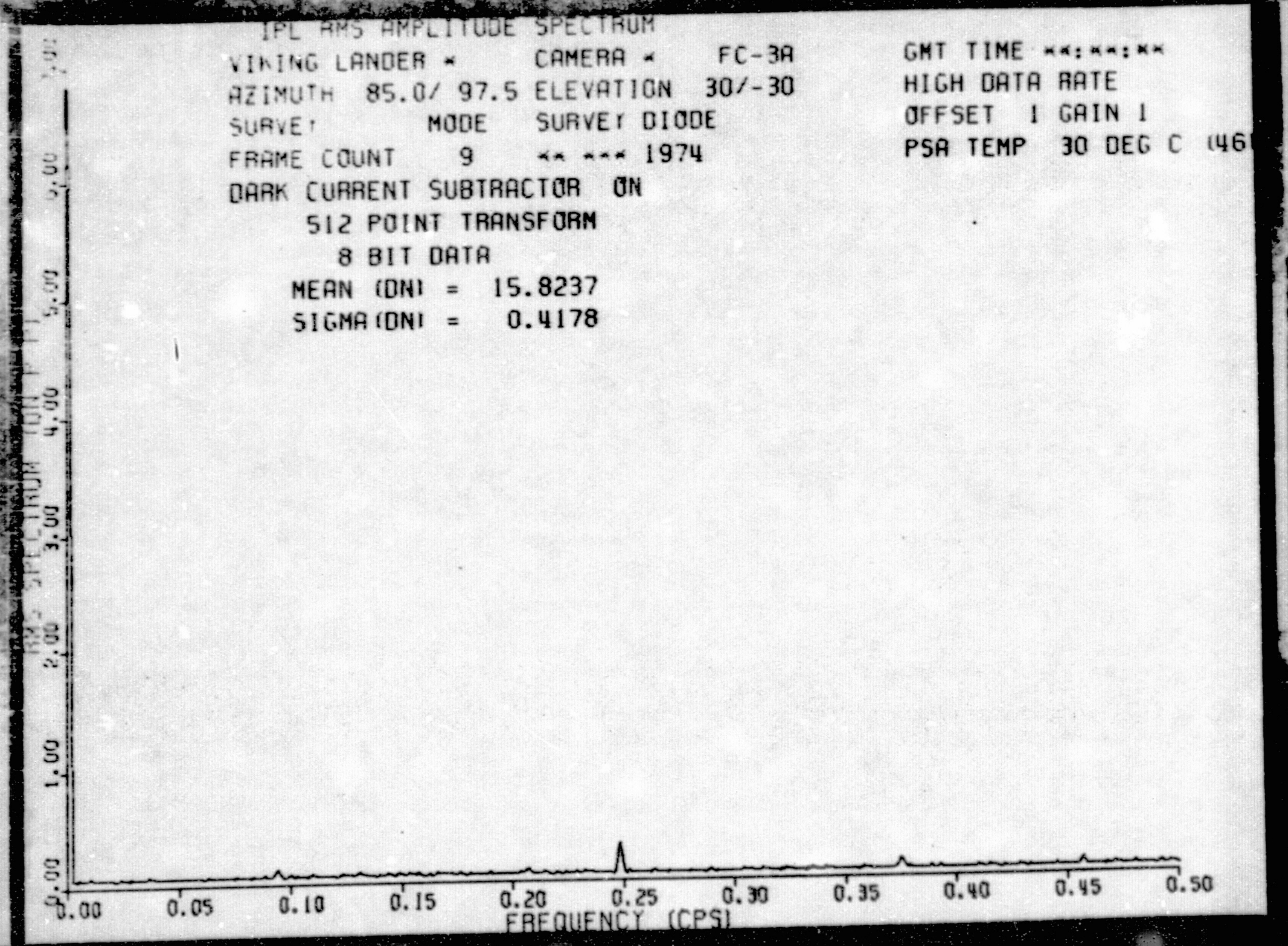
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB3 DIODE
FRAME COUNT 5 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.3441
SIGMA(DN) = 1.0914
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

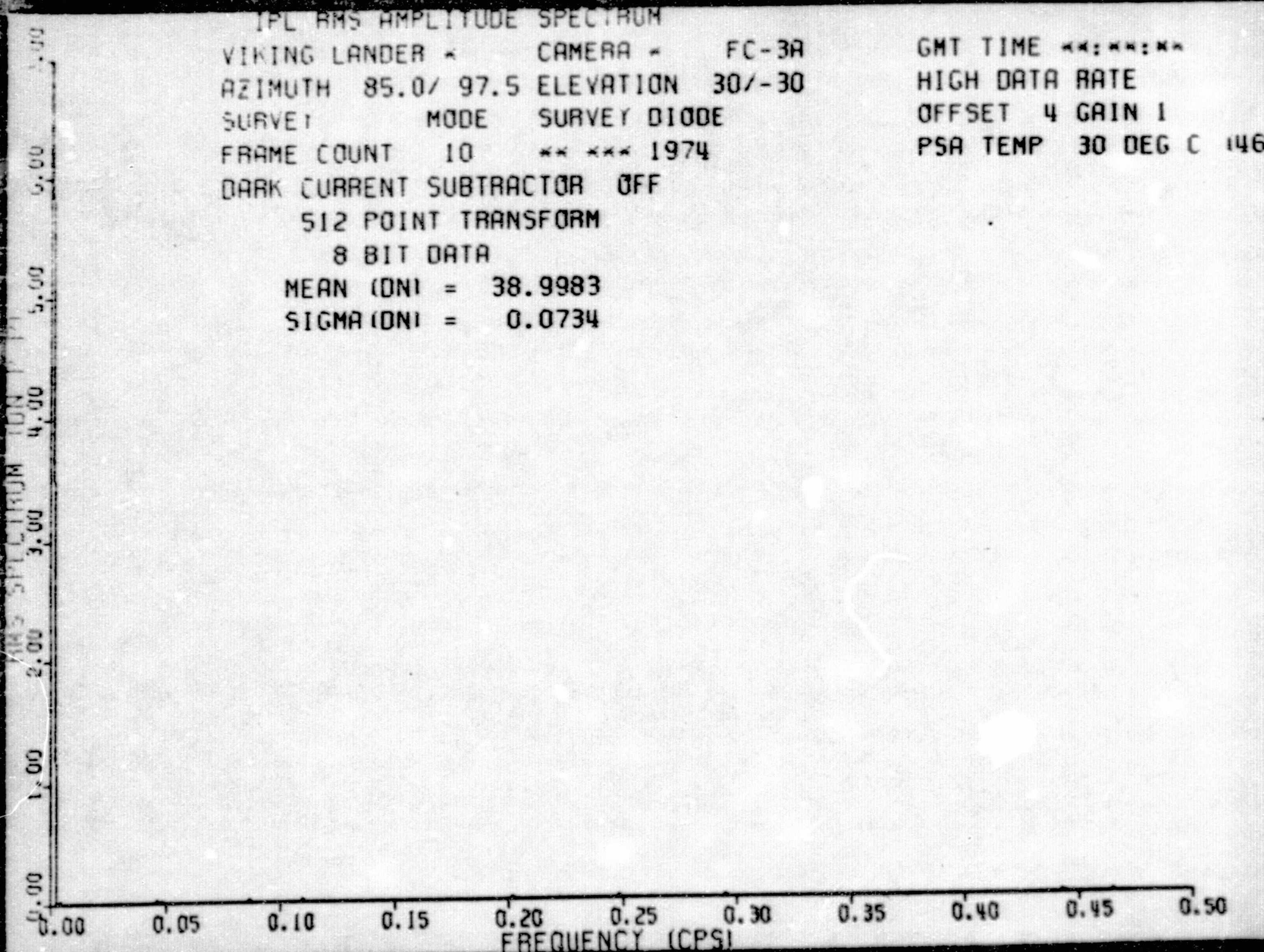

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB3 DIODE
FRAME COUNT 6 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 46.7347
SIGMA(DN) = 1.0759
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P-P)
FREQUENCY (CPS)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
1.00
2.00
3.00
4.00
5.00
6.00

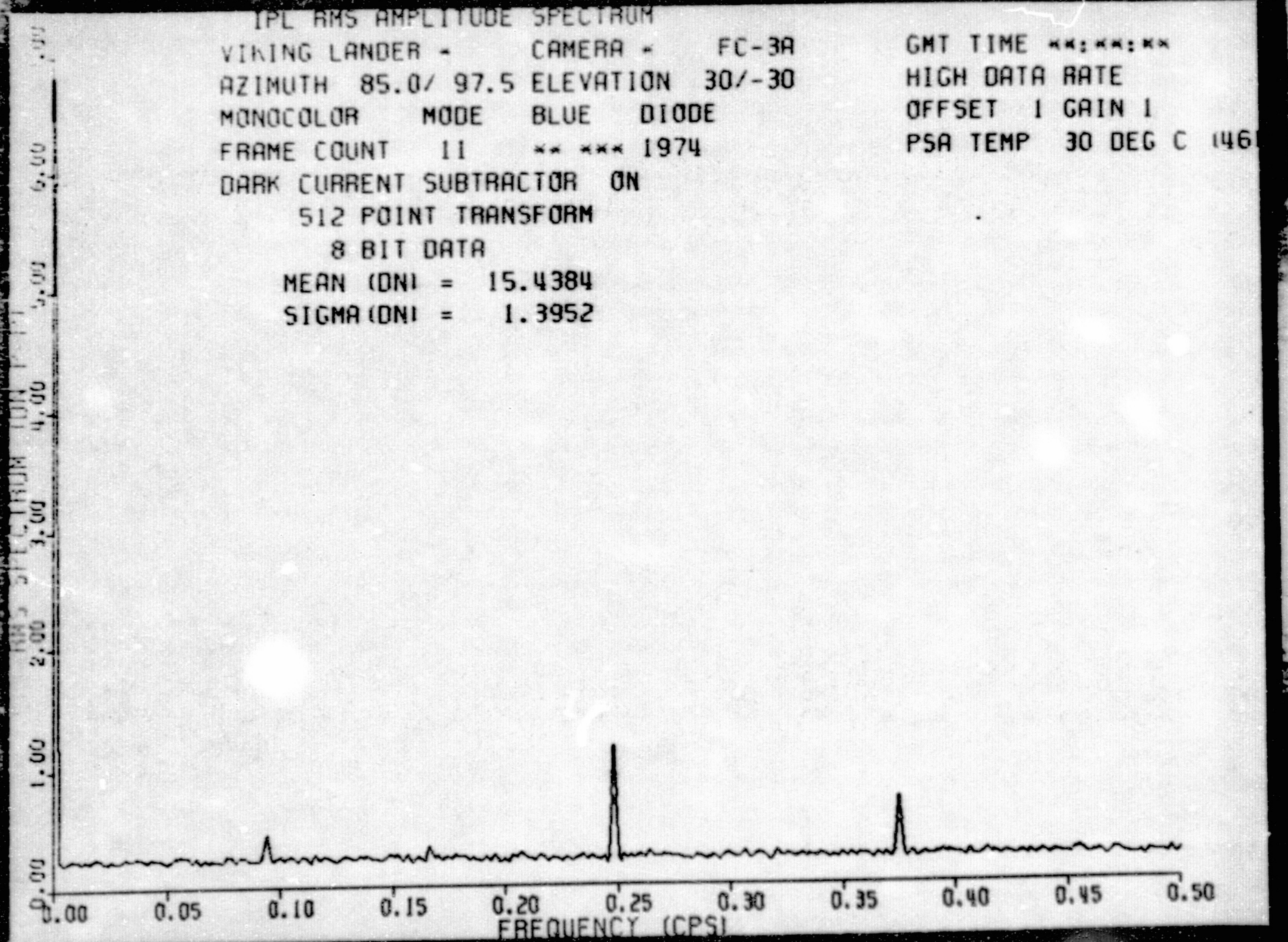


AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB4 DIODE
FRAME COUNT 135 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.7050
SIGMA(DN) = 1.2816
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

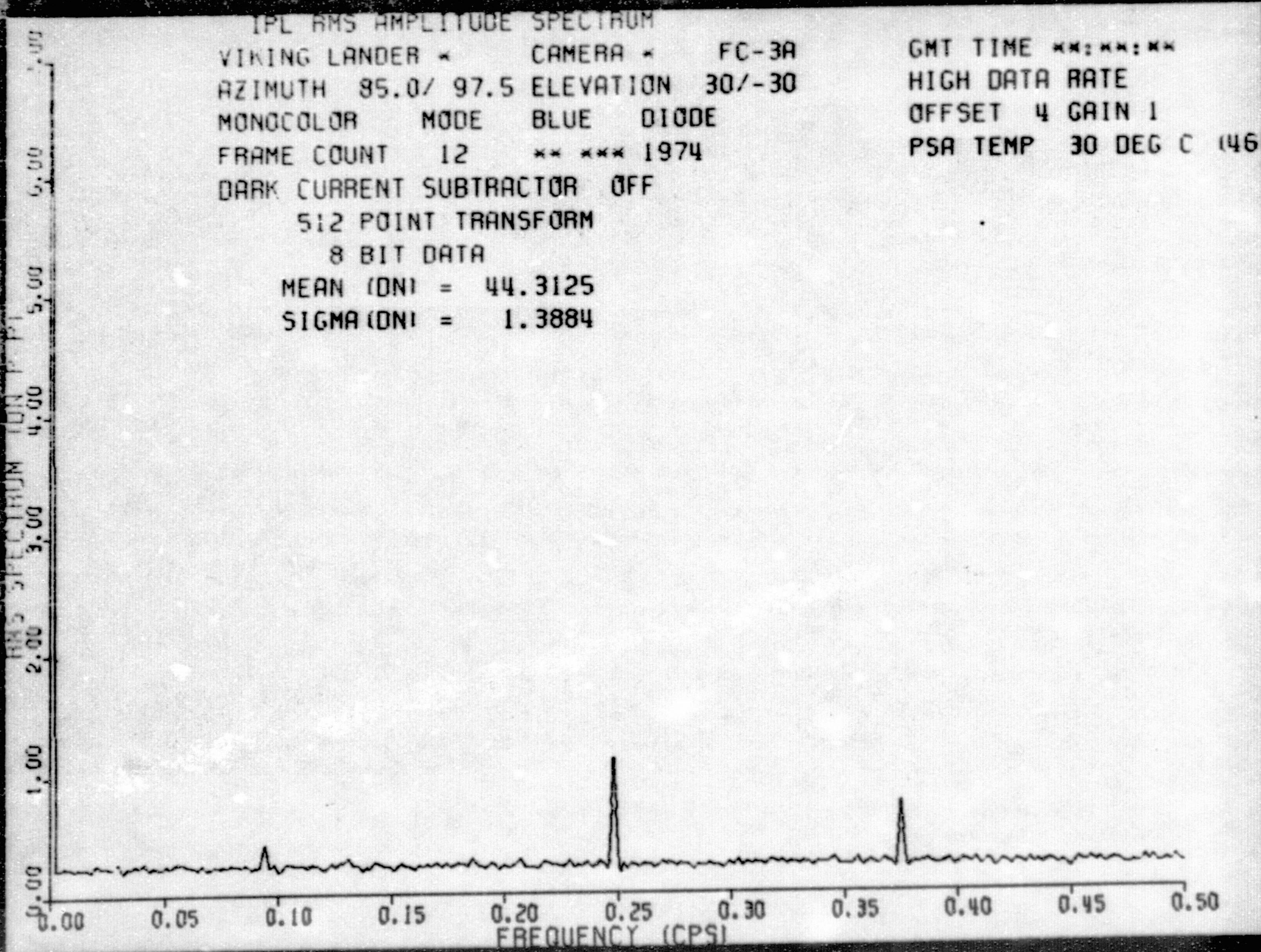

AZIMUTH 87.5/ 92.5 ELEVATION 10/-10
BROADBAND MODE BB4 DIODE
FRAME COUNT 136 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 50.6524
SIGMA (DN) = 1.1971
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)


JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 1 GAIN 1
FRAME COUNT 9 ** *** 1974
PSA TEMP 30 DEG C (46
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.8237
SIGMA (DN) = 0.4178
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

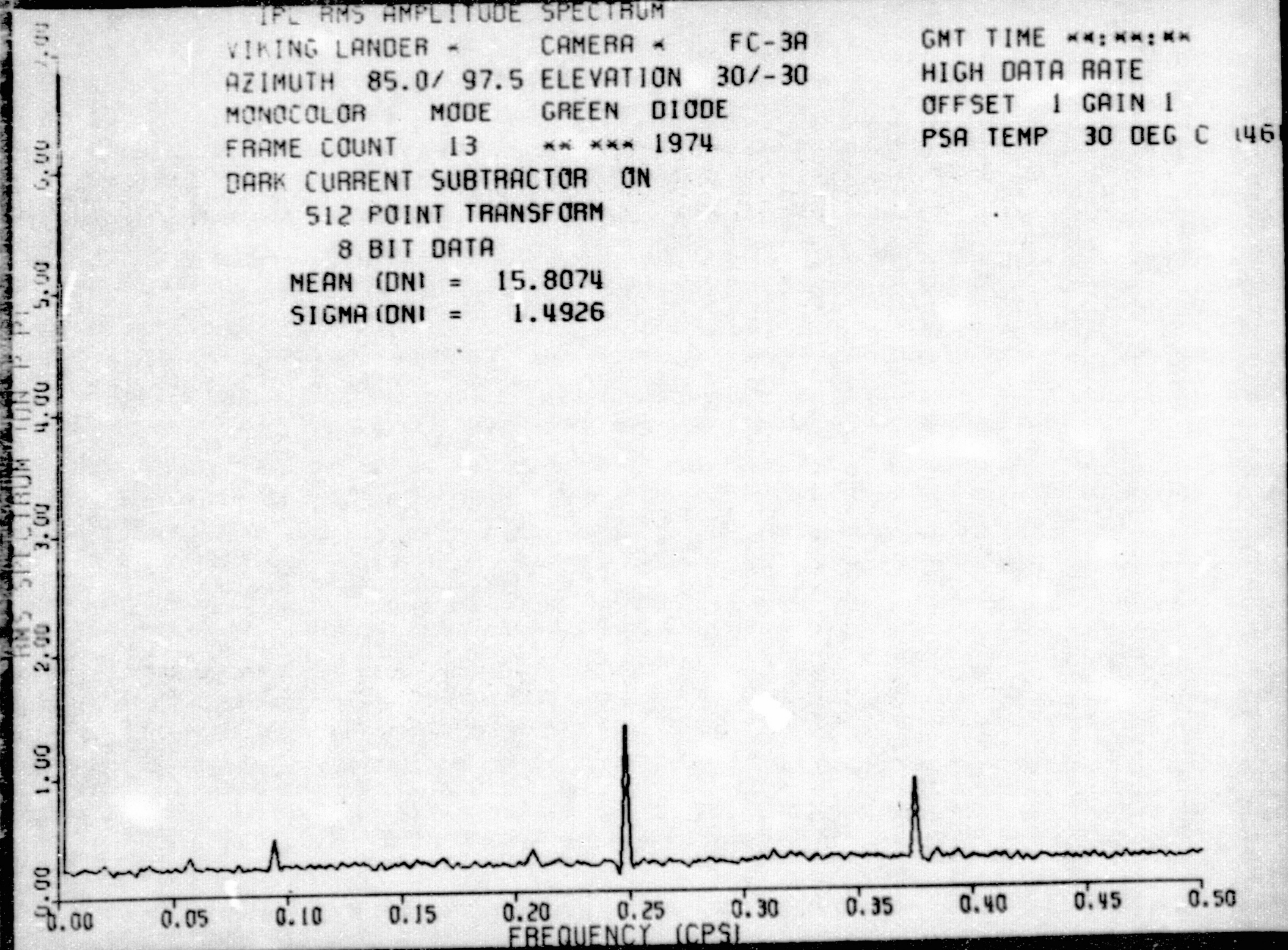

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5
ELEVATION 30/-30
HIGH DATA RATE
SURVEY
MODE
SURVEY DIODE
OFFSET 4 GAIN 1
FRAME COUNT 10
** *** 1974
PSA TEMP 30 DEG C 146
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 38.9983
SIGMA(DN) = 0.0734
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



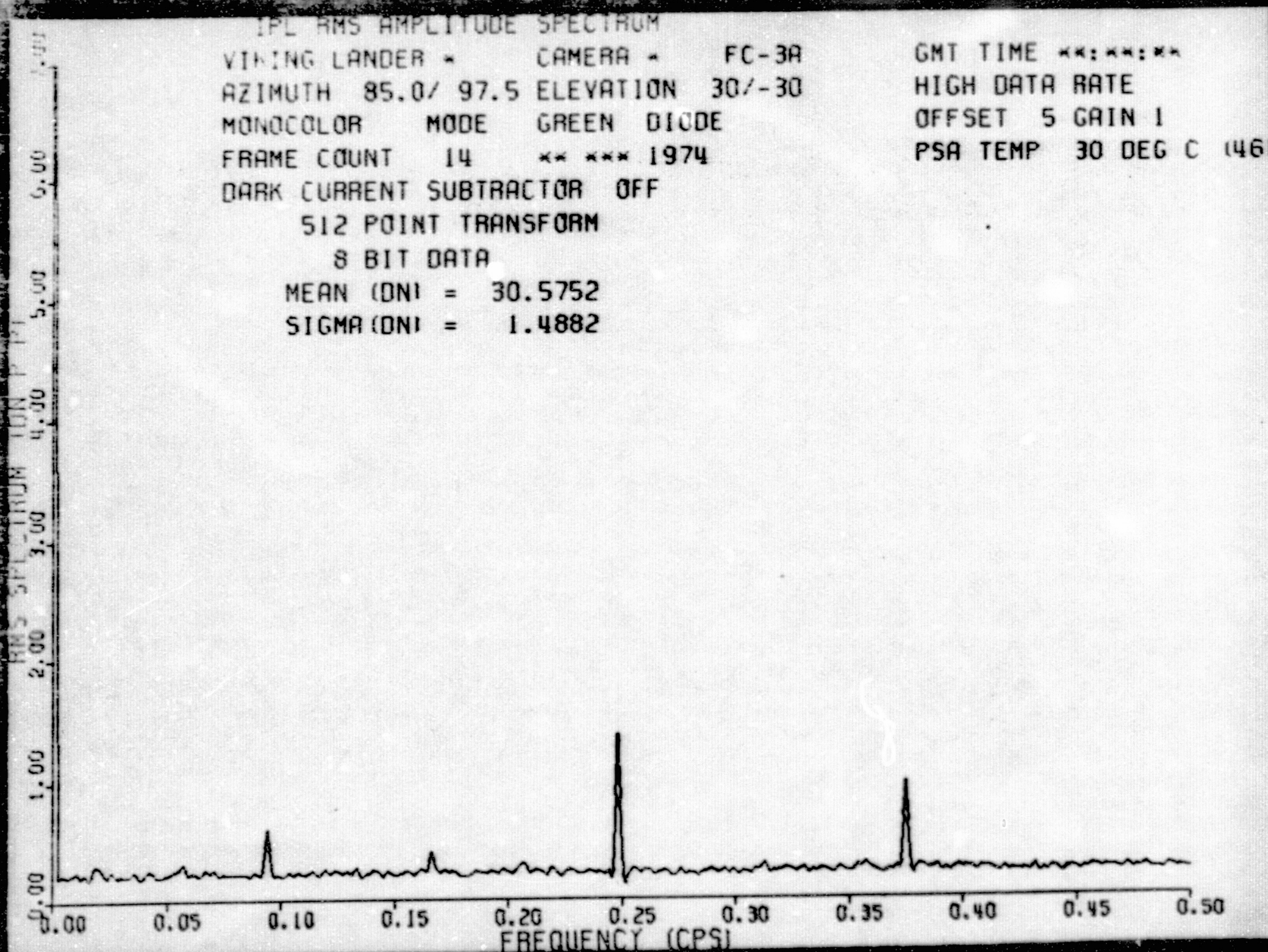
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER - CAMERA - FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE BLUE DIODE
OFFSET 1 GAIN 1
FRAME COUNT 11 ** *** 1974
PSA TEMP 30 DEG C (46
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.4384
SIGMA(DN) = 1.3952
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



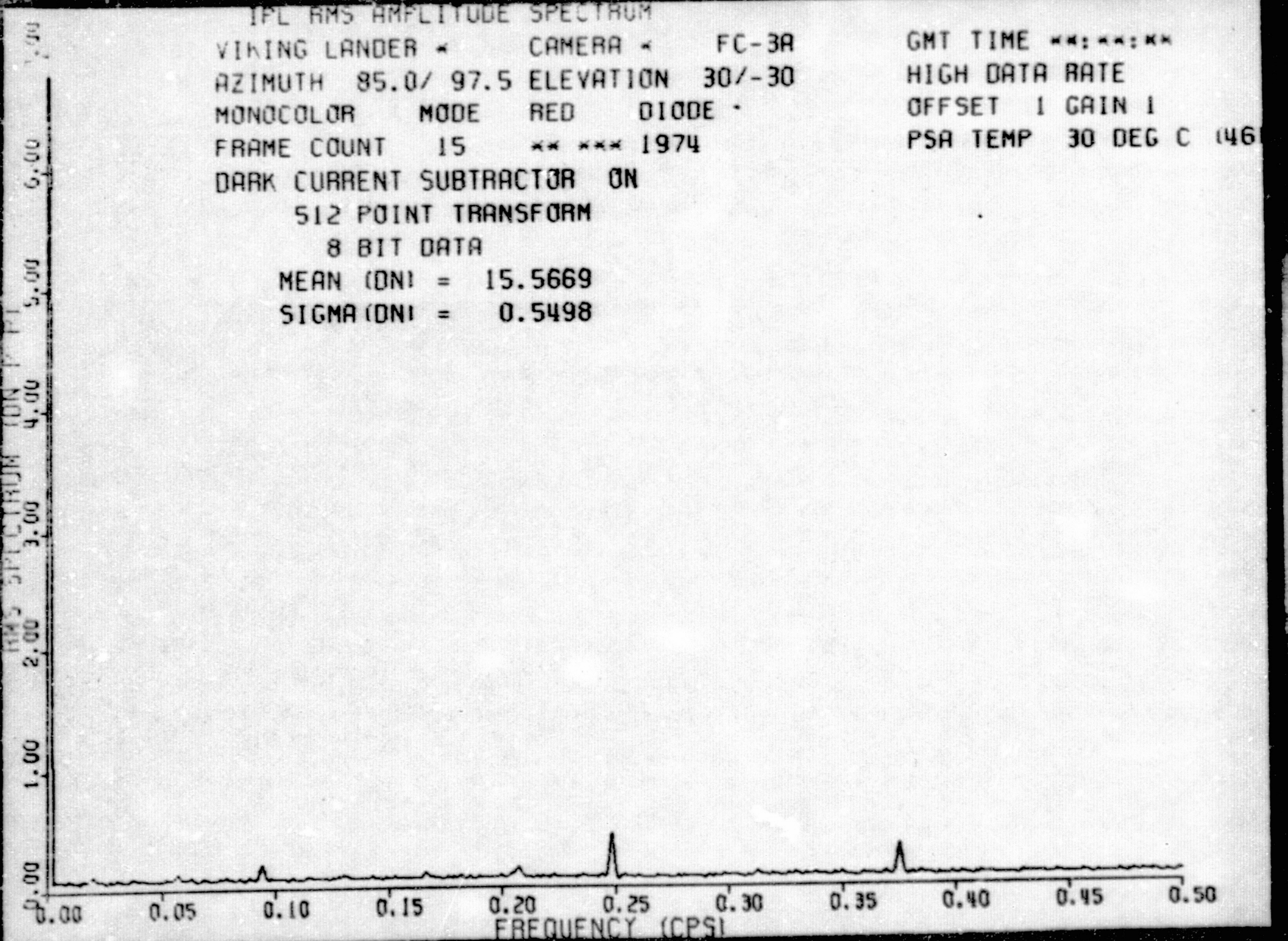
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE BLUE DIODE
OFFSET 4 GAIN 1
FRAME COUNT 12 ** *** 1974
PSA TEMP 30 DEG C (46
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 44.3125
SIGMA(DN) = 1.3884
RMS SPECTRUM (DN P PT)
0.00
1.00
2.00
3.00
4.00
5.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

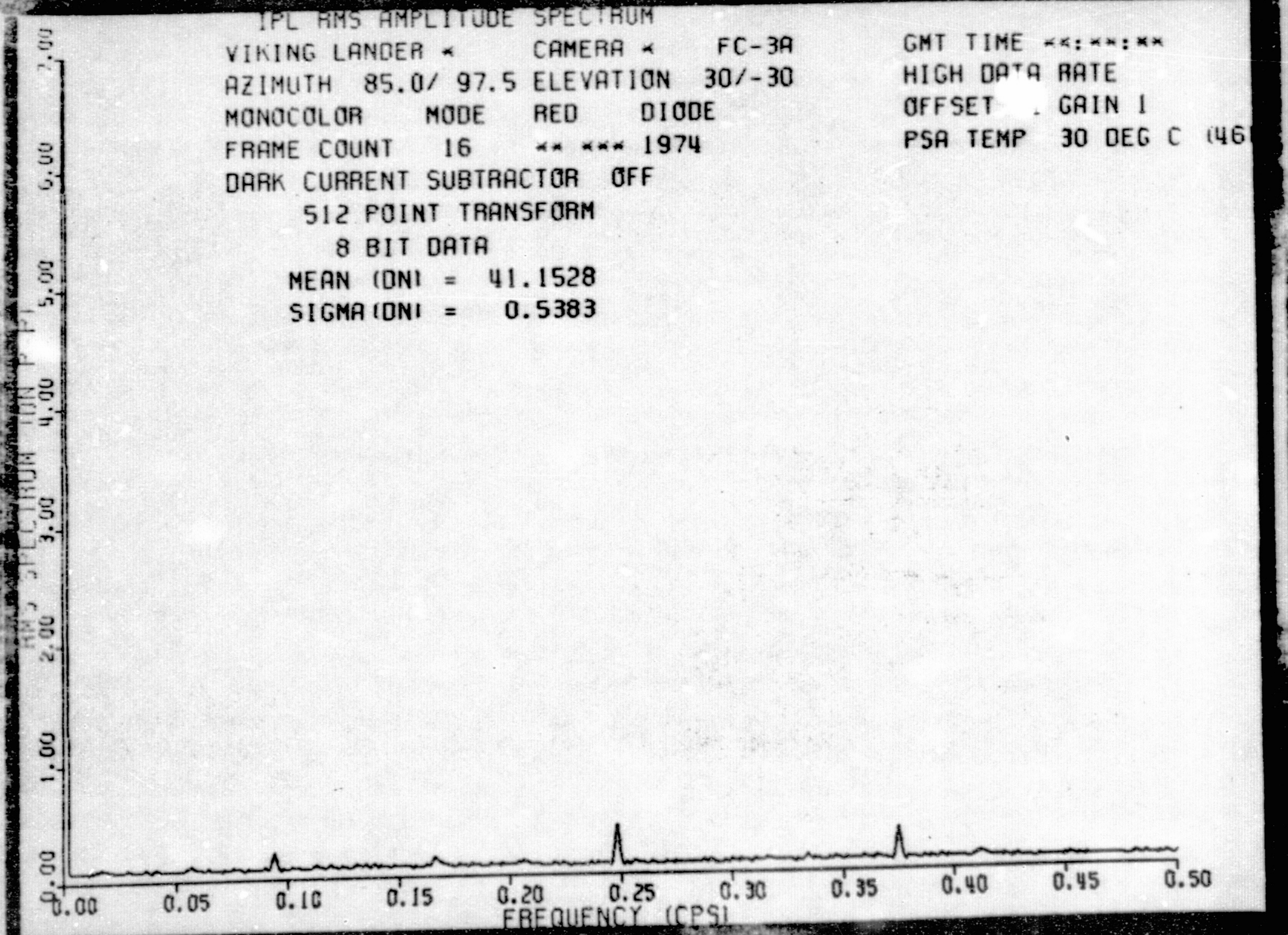


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE GREEN DIODE
FRAME COUNT 13 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.8074
SIGMA(DN) = 1.4926
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

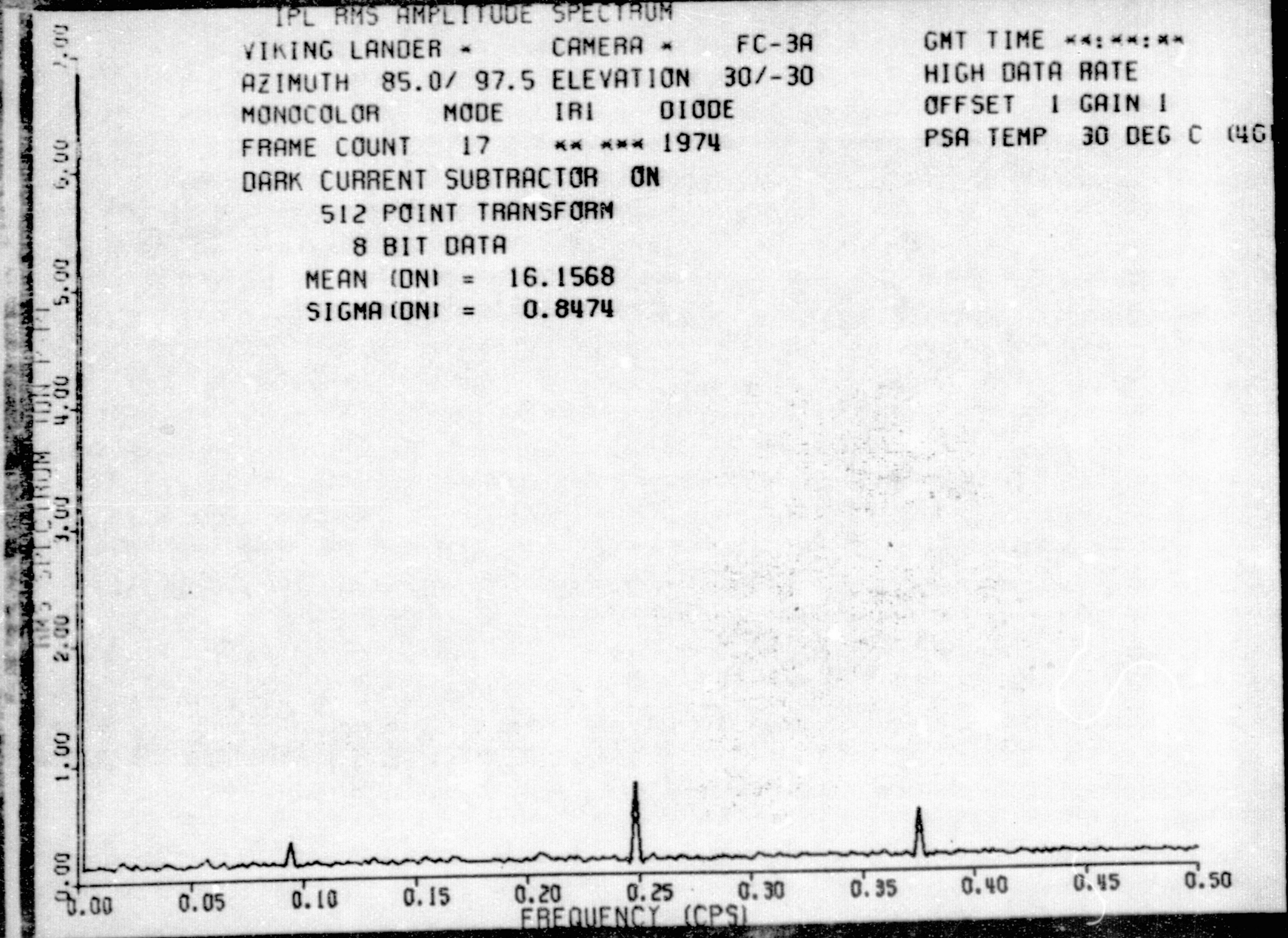

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE GREEN DIODE
FRAME COUNT 14 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 30.5752
SIGMA(DN) = 1.4882
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 30 DEG C (46
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

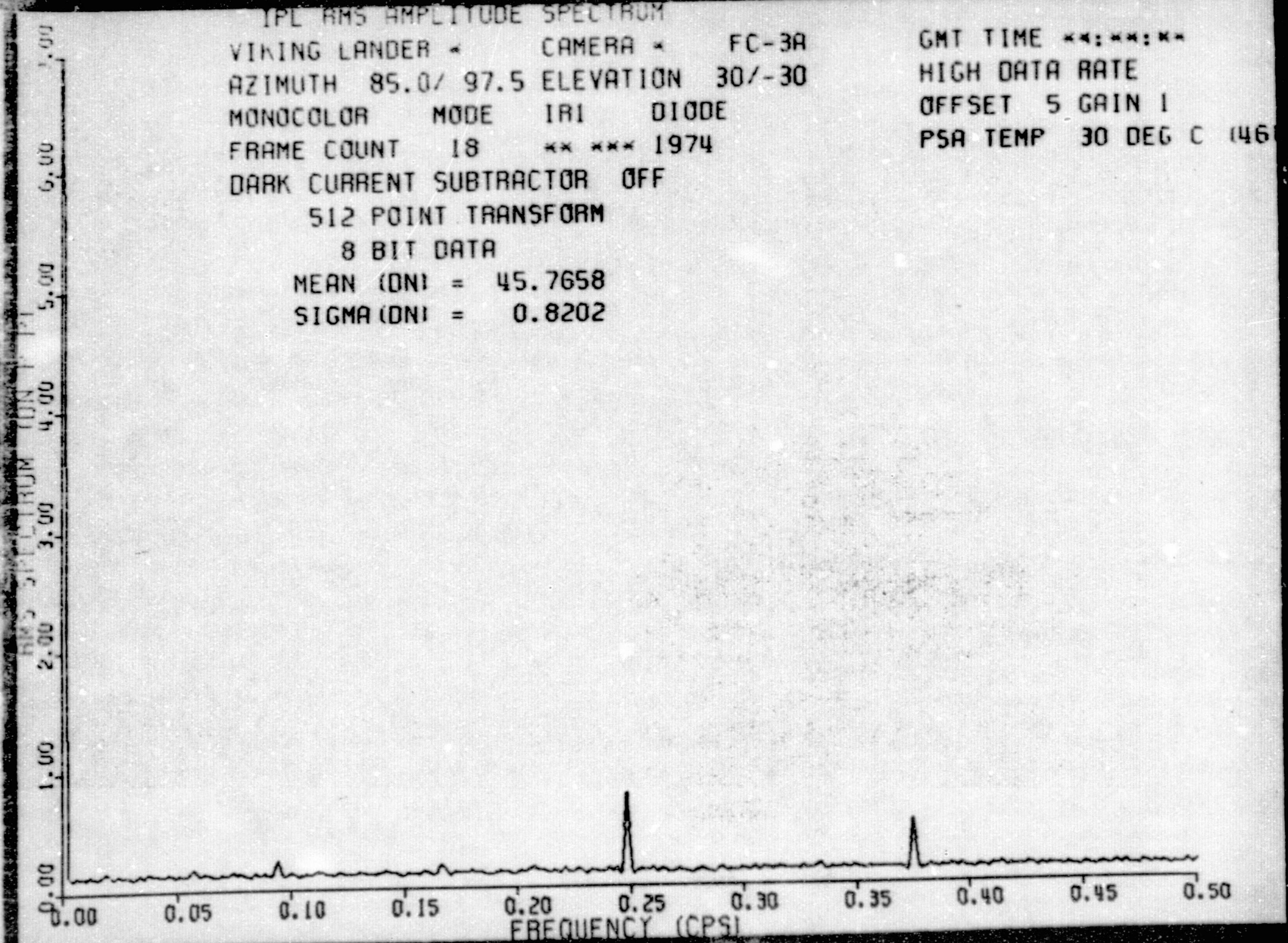
752


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5
ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE RED DIODE
OFFSET 1 GAIN 1
FRAME COUNT 15
** *** 1974
PSA TEMP 30 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.5669
SIGMA(DN) = 0.5498
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

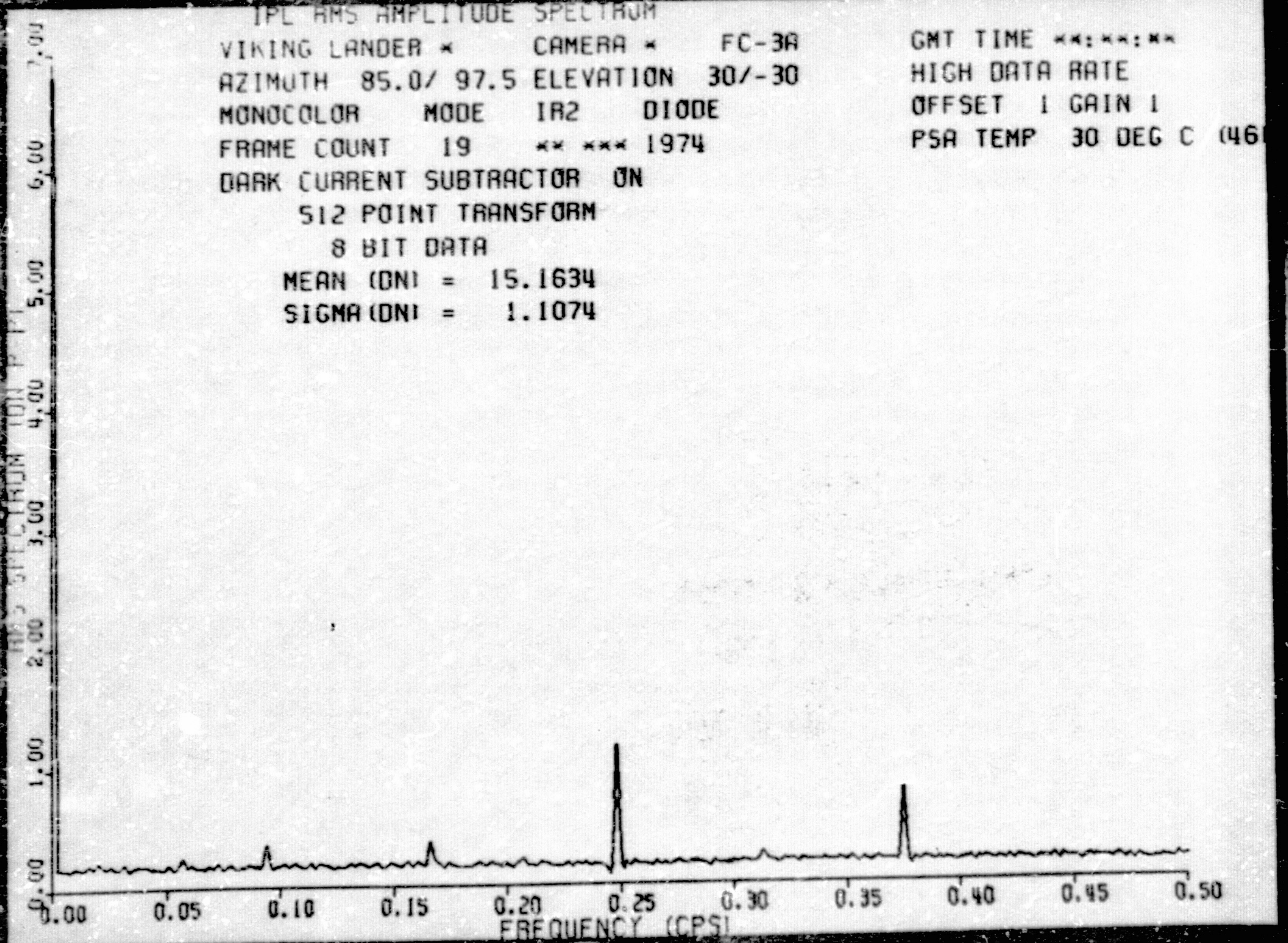


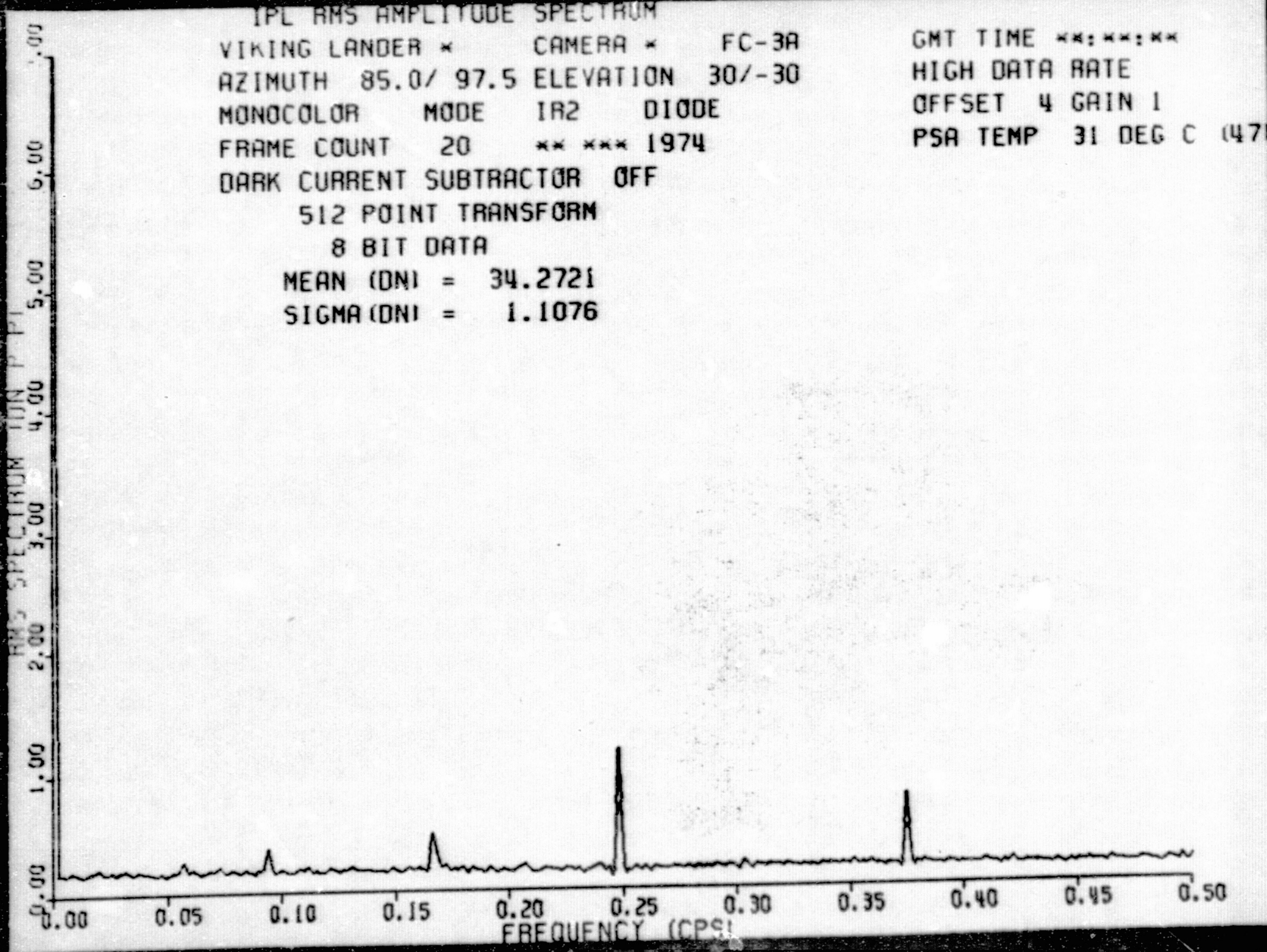
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE RED DIODE
FRAME COUNT 16 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 41.1528
SIGMA(DN) = 0.5383
GMT TIME **:**:**
HIGH DATA RATE
OFFSET . GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *   CAMERA *   FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR   MODE   IR1   DIODE
FRAME COUNT   17   ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.1568
SIGMA(DN) =   0.8474
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (4G
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

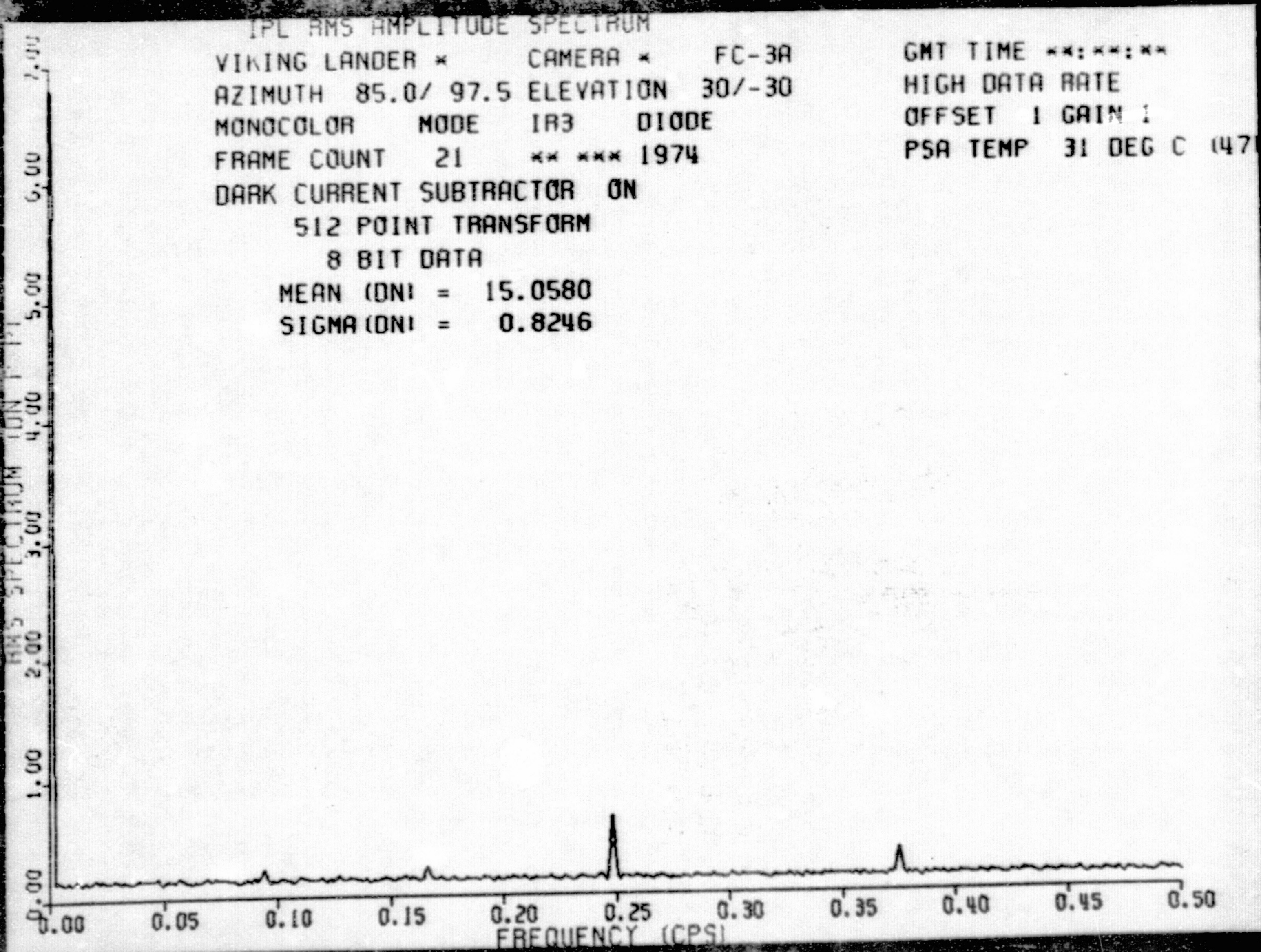


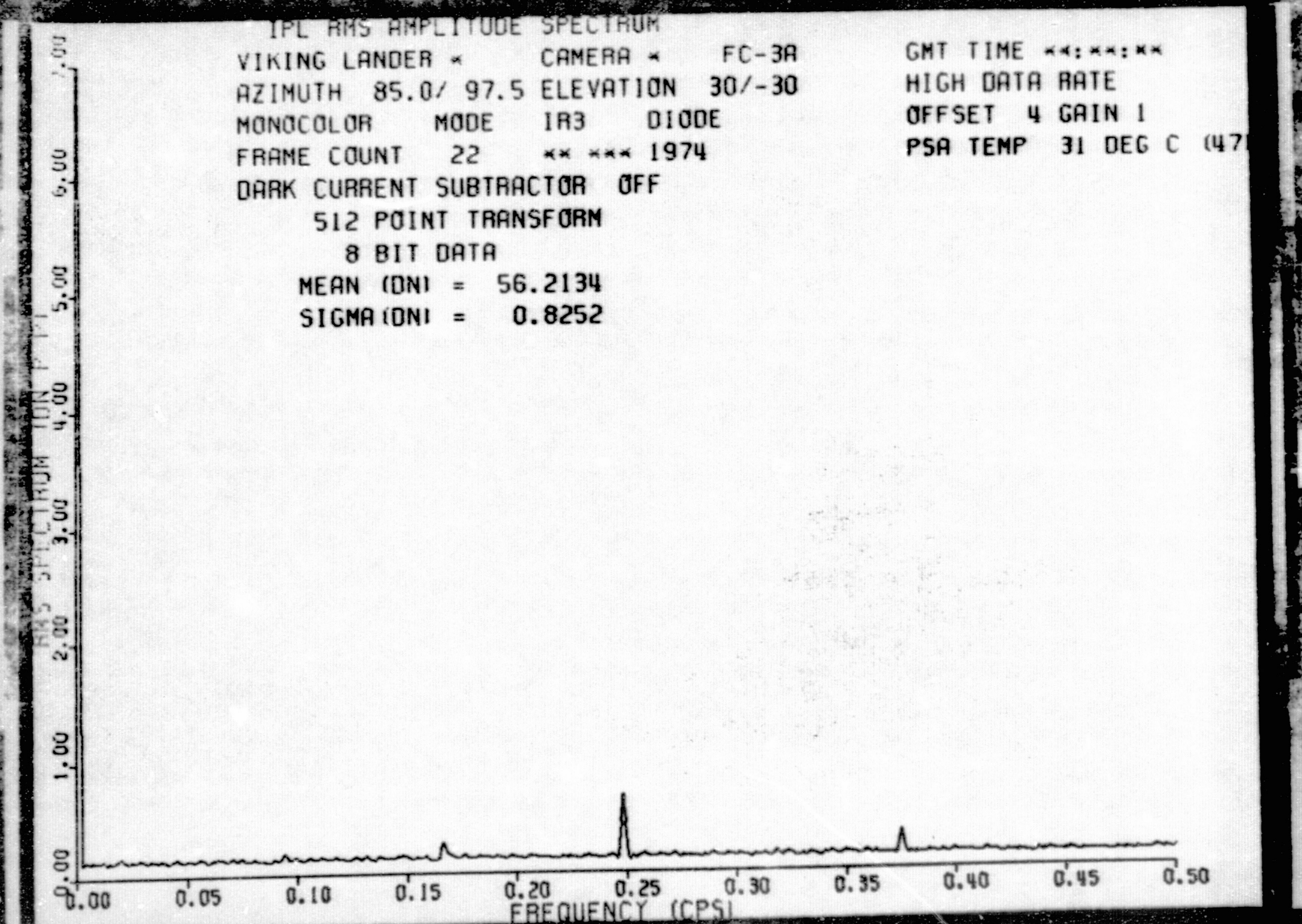
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR1 DIODE
FRAME COUNT 18 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 45.7658
SIGMA(DN) = 0.8202
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 1
PSA TEMP 30 DEG C (46
RMS SPECTRUM (DN) PT
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

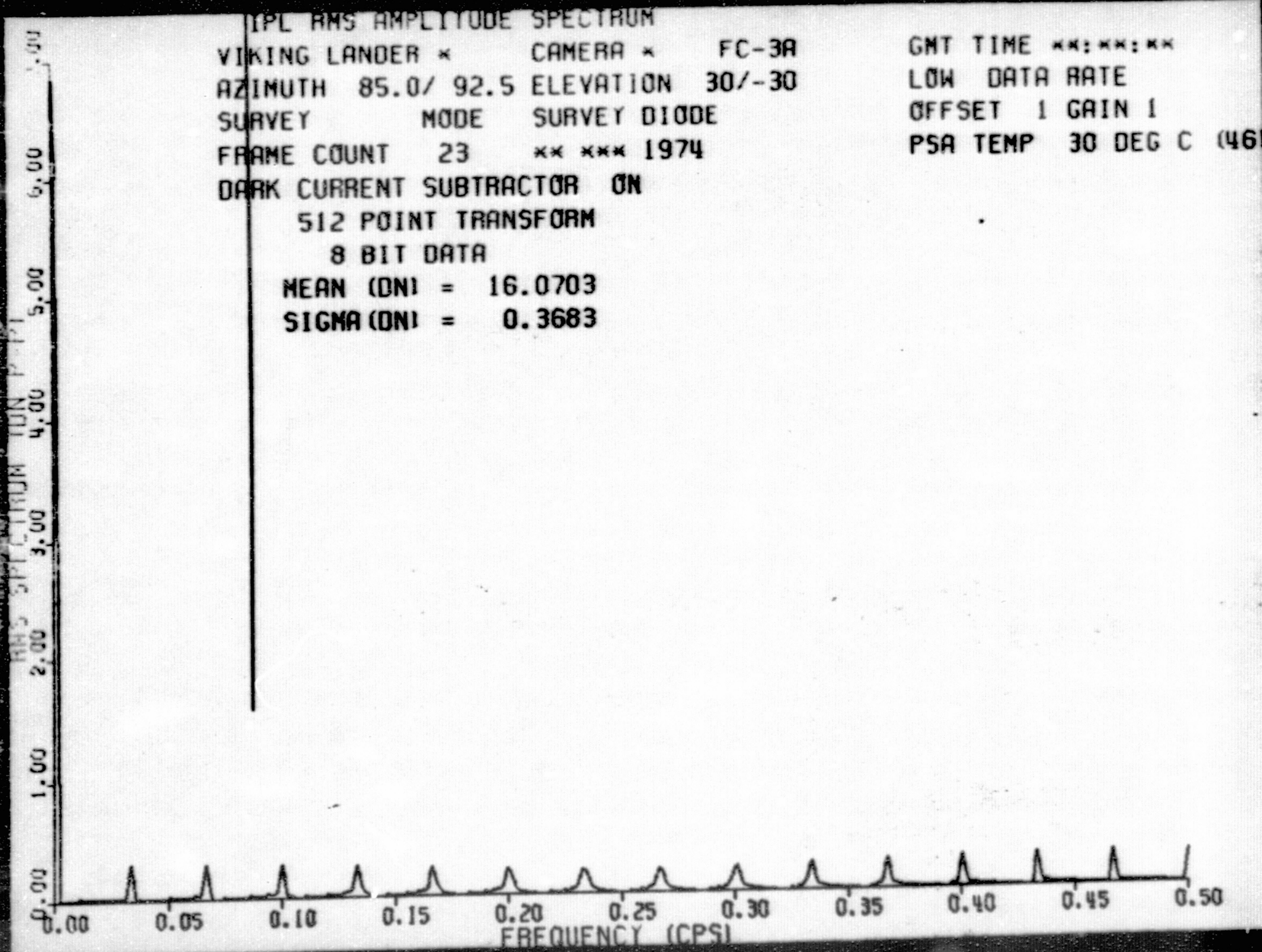

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR2 DIODE
FRAME COUNT 19 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.1634
SIGMA(DN) = 1.1074
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

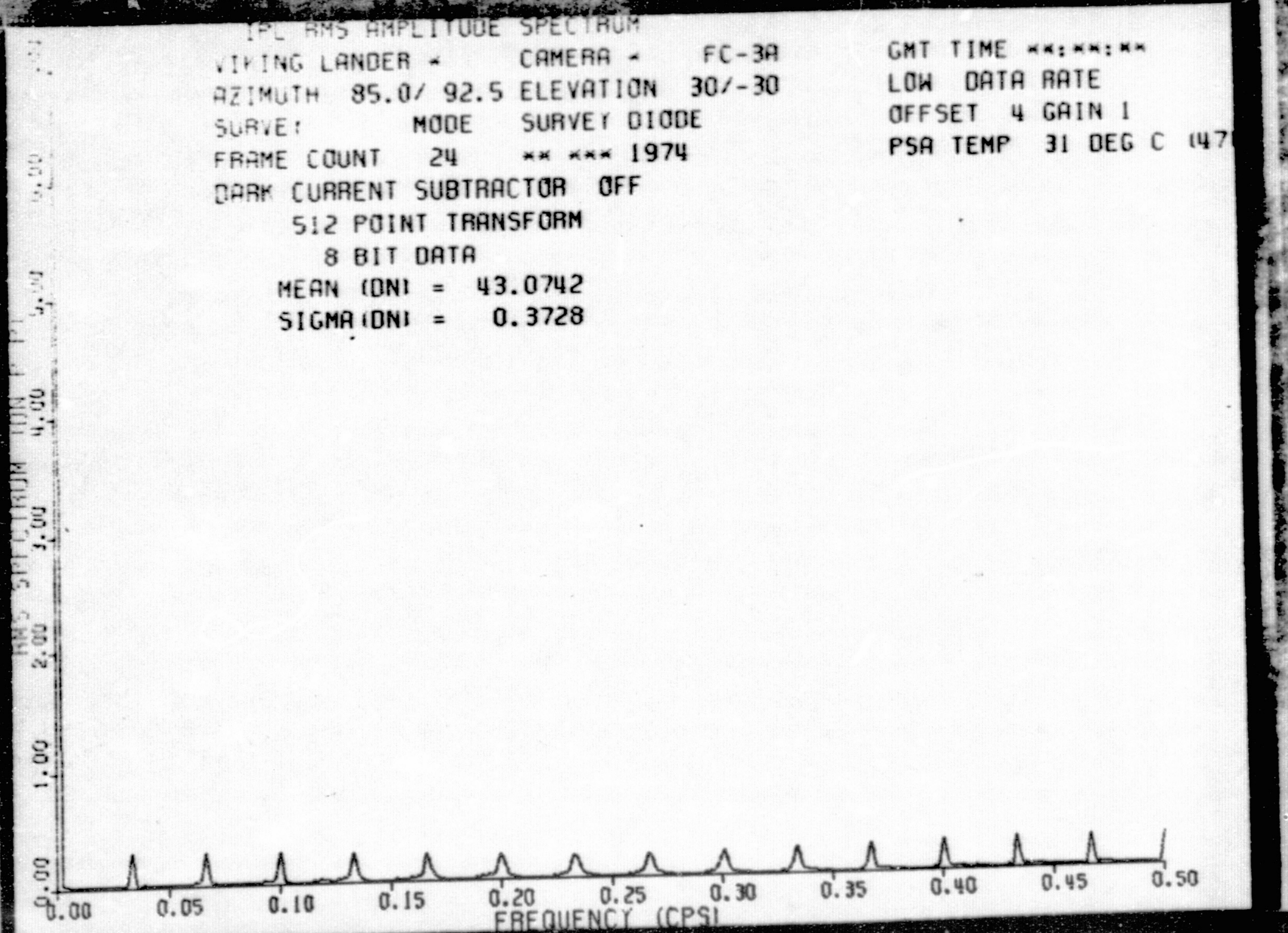


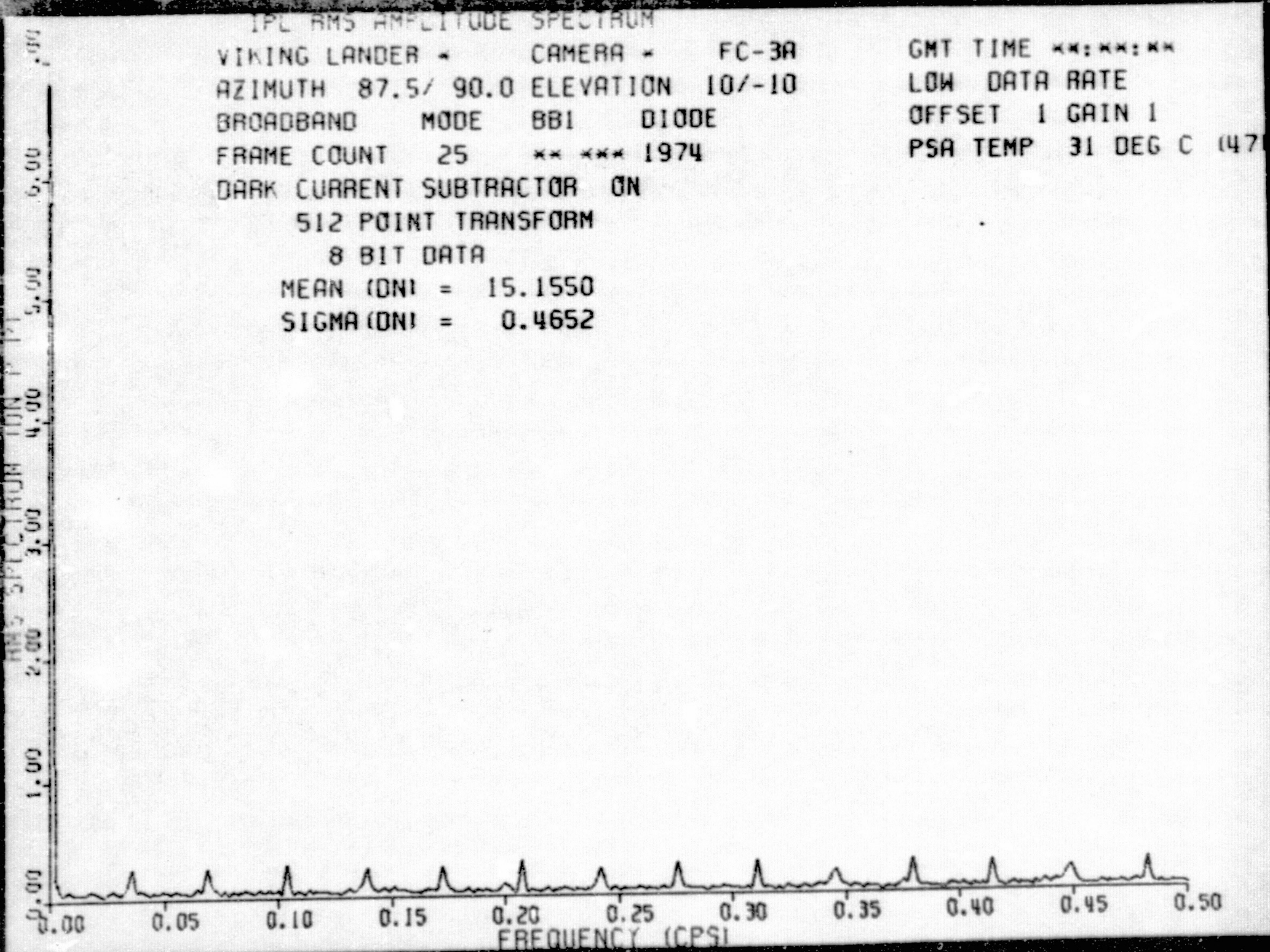
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR2 DIODE
FRAME COUNT 20 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 34.2721
SIGMA(DN) = 1.1076
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 31 DEG C (47
RMS SPECTRUM (DN P P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


JPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
MONOCOLOR MODE IR3 DIODE
FRAME COUNT 21 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.0580
SIGMA(DN) = 0.8246
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 31 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

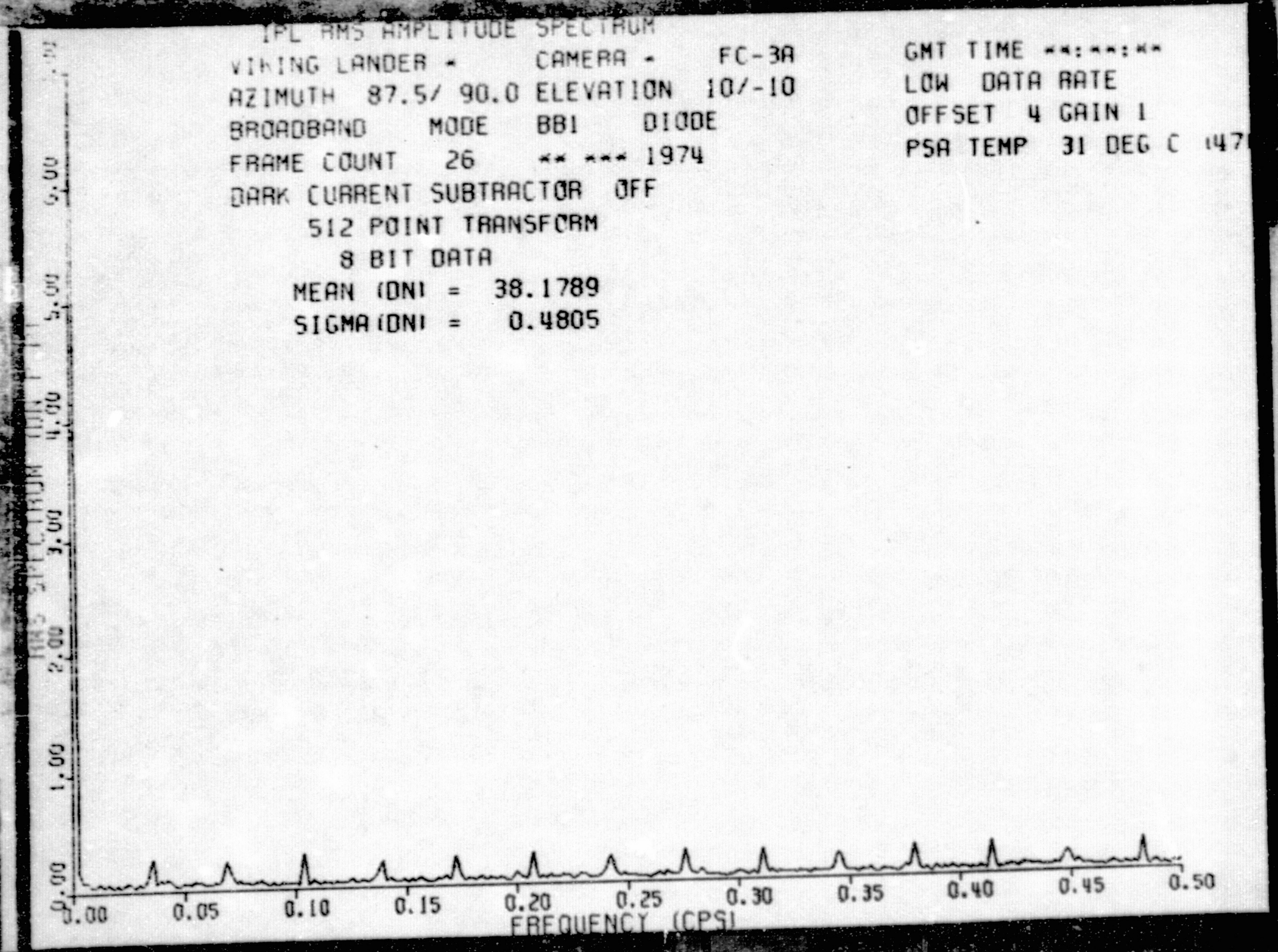

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 97.5 ELEVATION 30/-30
HIGH DATA RATE
MONOCOLOR MODE IR3 DIODE
OFFSET 4 GAIN 1
FRAME COUNT 22 ** *** 1974
PSA TEMP 31 DEG C (47
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 56.2134
SIGMA(DN) = 0.8252
RMS SPECTRUM
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

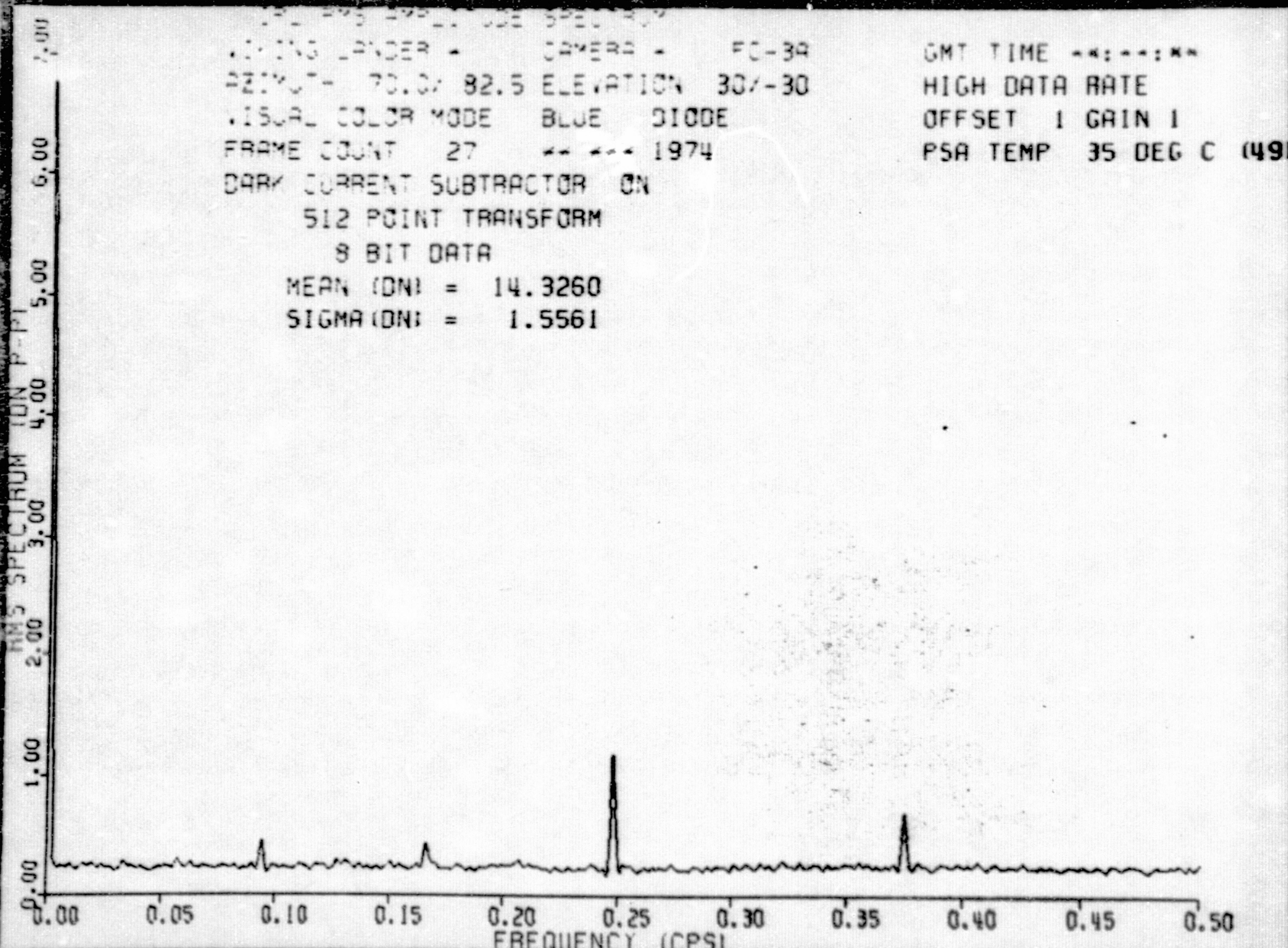

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 23 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.0703
SIGMA (DN) = 0.3683
GMT TIME **:**:**
LOW DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 30 DEG C (46
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
SURVEY MODE SURVEY DIODE
FRAME COUNT 24 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 43.0742
SIGMA(DN) = 0.3728
GMT TIME **:**:**
LOW DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 31 DEG C (47
RMS SPECTRUM (DN)
0.00
1.00
2.00
4.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

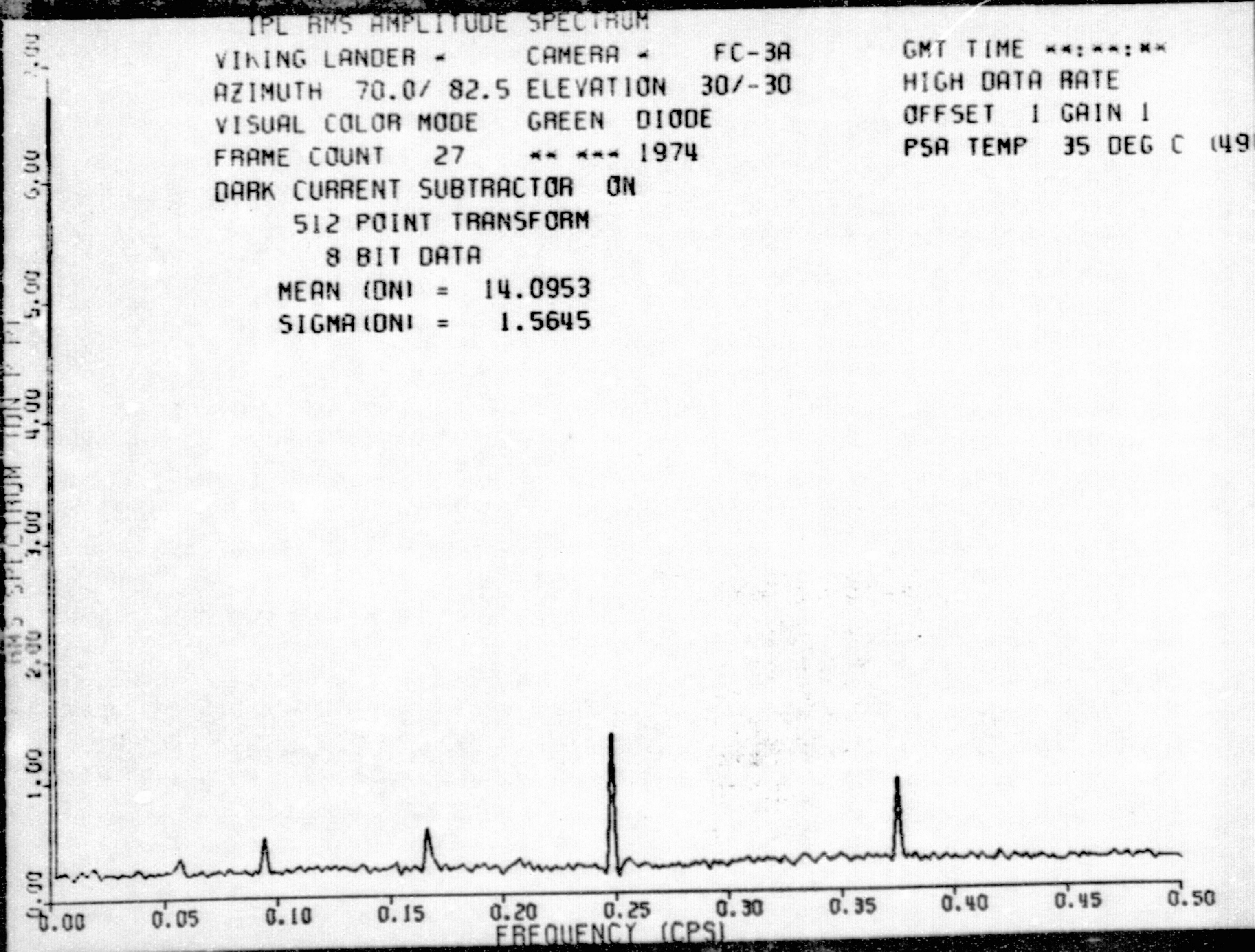


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 25 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.1550
SIGMA(DN) = 0.4652
GMT TIME **:**:**
LOW DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 31 DEG C
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

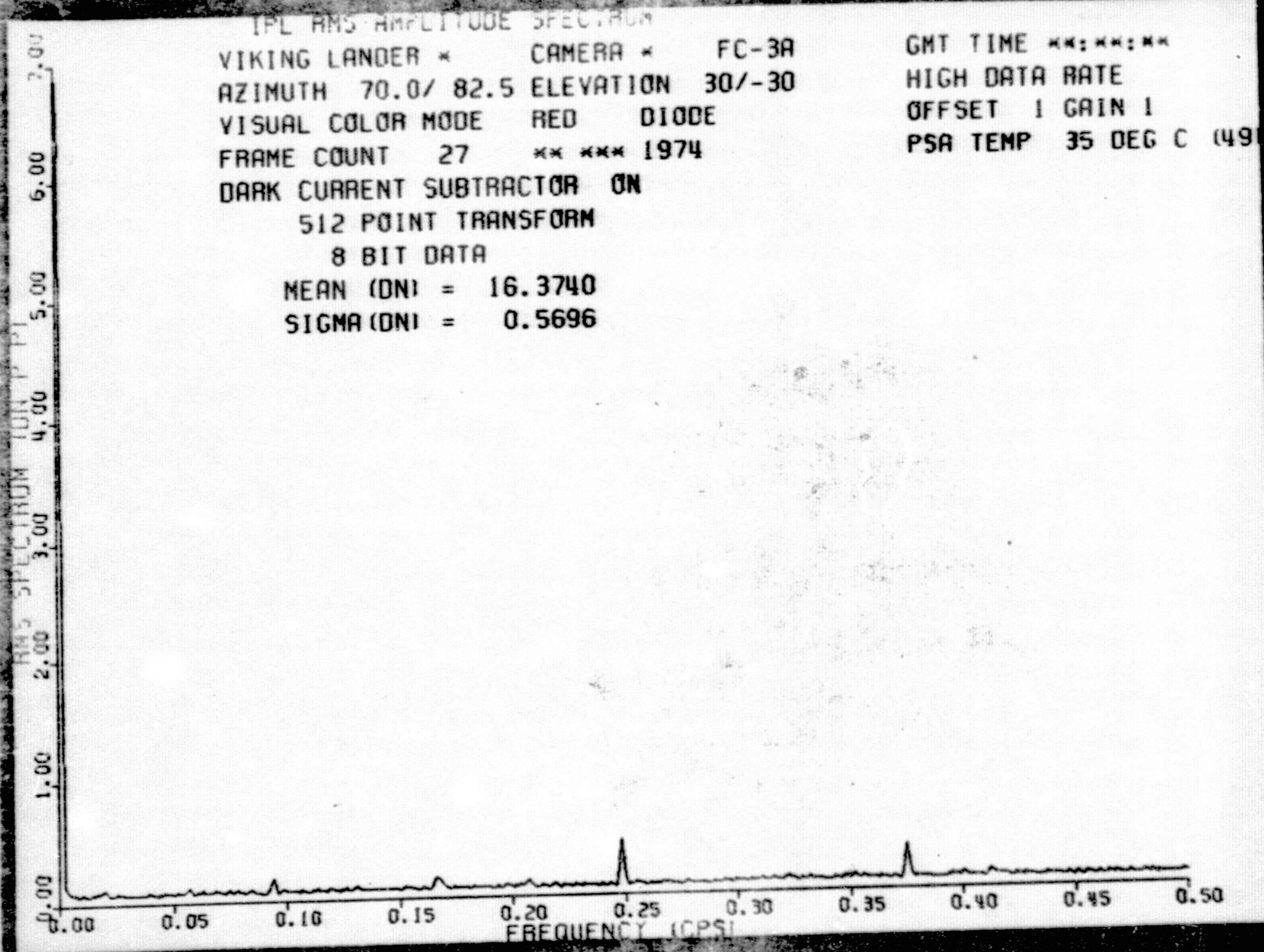

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER - CAMERA - FC-3A
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
BROADBAND MODE BB1 DIODE
FRAME COUNT 26 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 38.1789
SIGMA(DN) = 0.4805
GMT TIME **:**:**
LOW DATA RATE
OFFSET 4 GAIN 1
PSA TEMP 31 DEG C
RMS SPECTRUM (DN)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

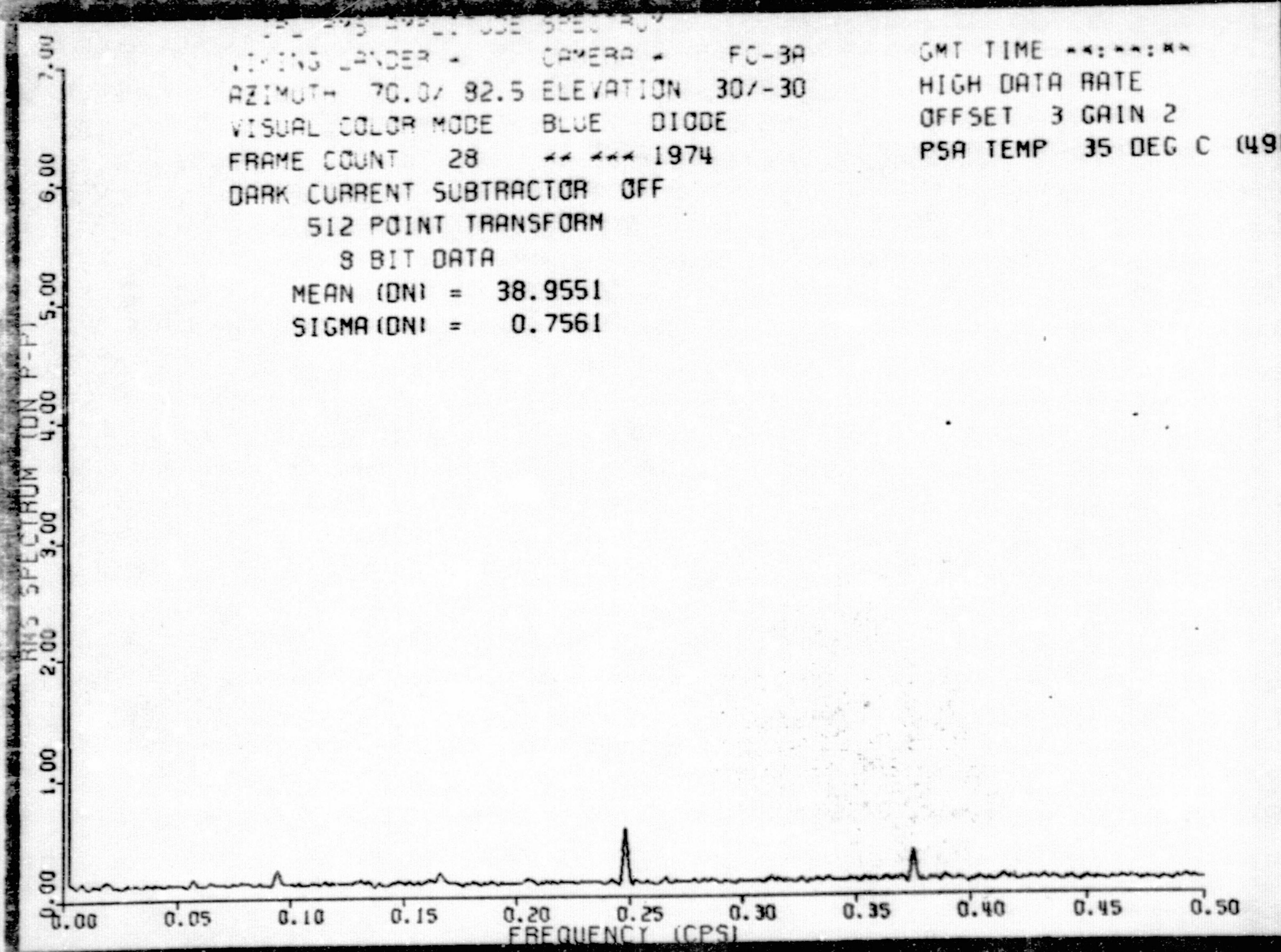


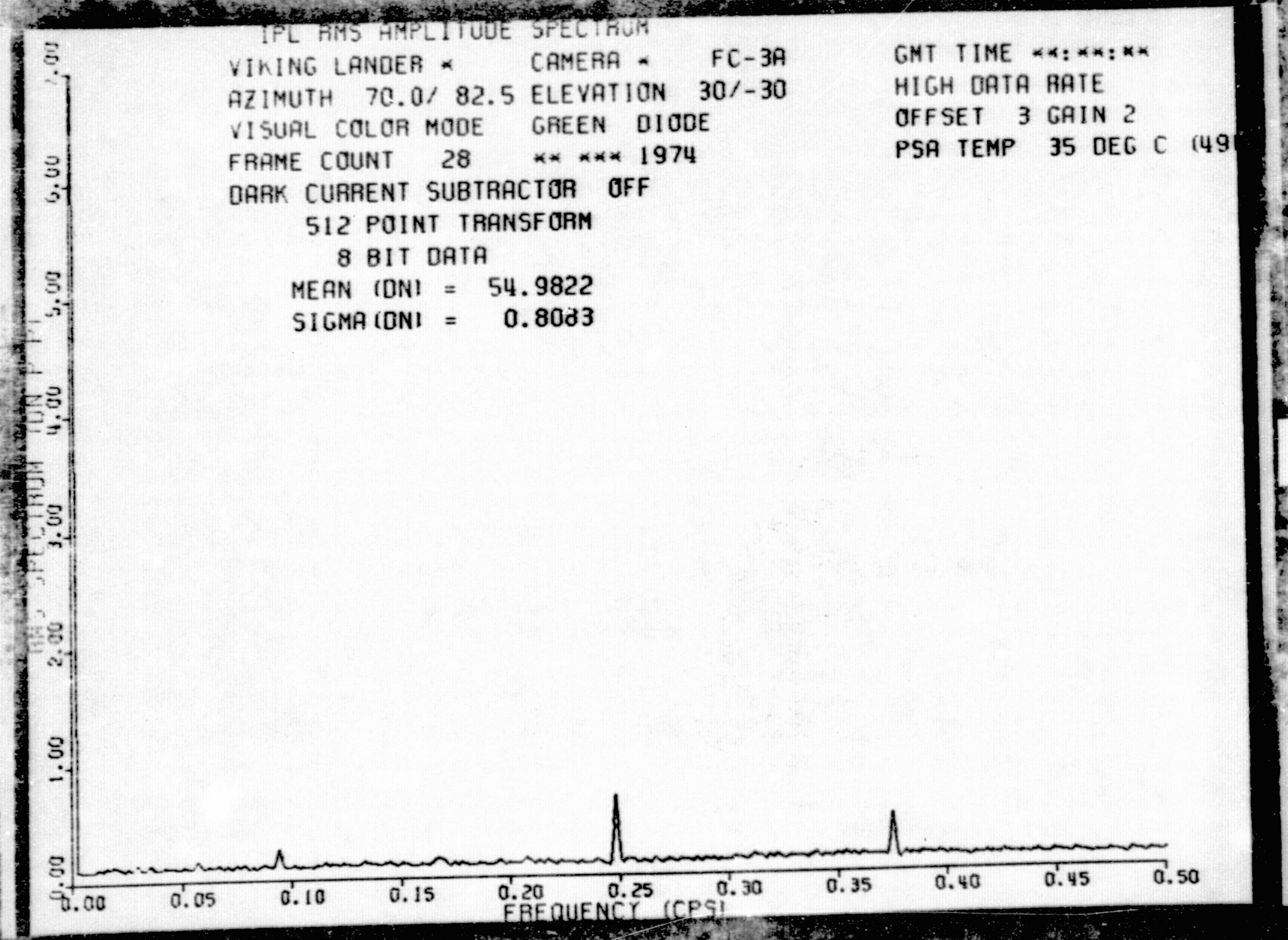
LANDER - CAMERA - FC-3A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
VISUAL COLOR MODE BLUE DIODE
FRAME COUNT 27 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.3260
SIGMA(DN) = 1.5561
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 35 DEG C (49
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

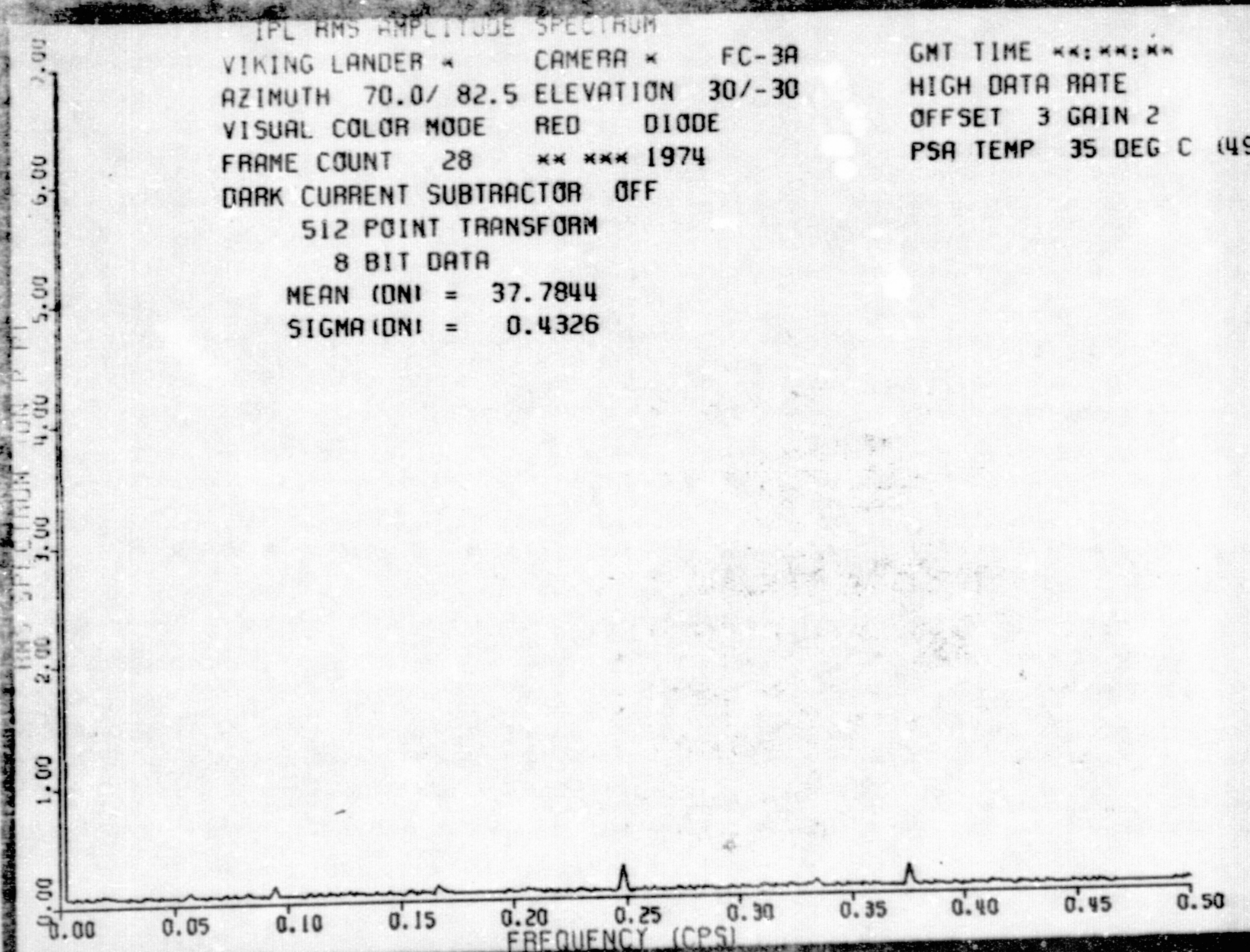


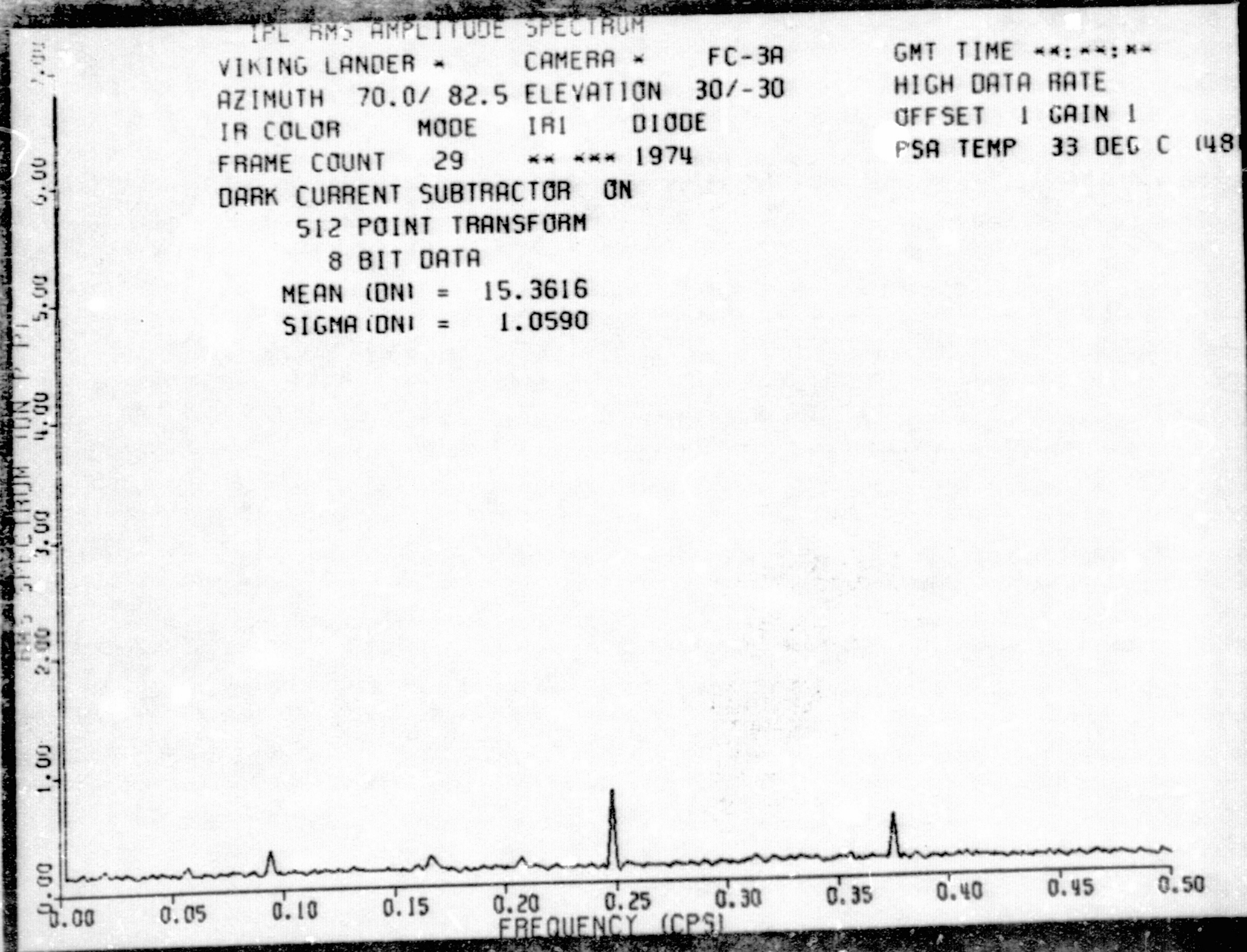
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER -
CAMERA -
FC-3A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
GREEN DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27
** *** 1974
PSA TEMP 35 DEG C (49
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.0953
SIGMA(DN) = 1.5645
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

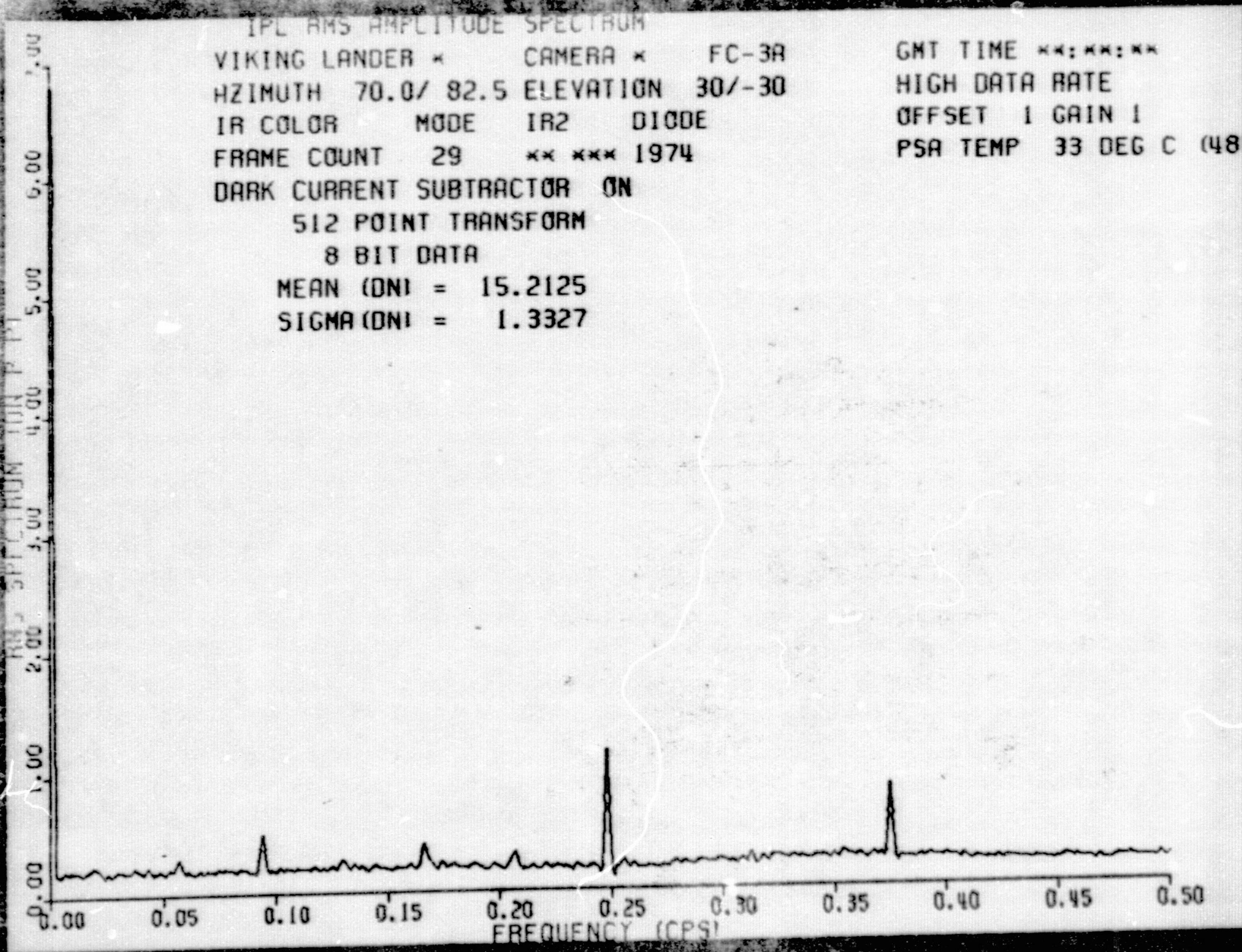

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE
RED
DIODE
OFFSET 1 GAIN 1
FRAME COUNT 27
** *** 1974
PSA TEMP 35 DEG C (49
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 16.3740
SIGMA (DN) = 0.5696
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


VIKING LANDER *
CAMERA * FC-3A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
VISUAL COLOR MODE BLUE DIODE
OFFSET 3 GAIN 2
FRAME COUNT 28 ** *** 1974
PSA TEMP 35 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 38.9551
SIGMA(DN) = 0.7561
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
FREQUENCY (CPS)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50

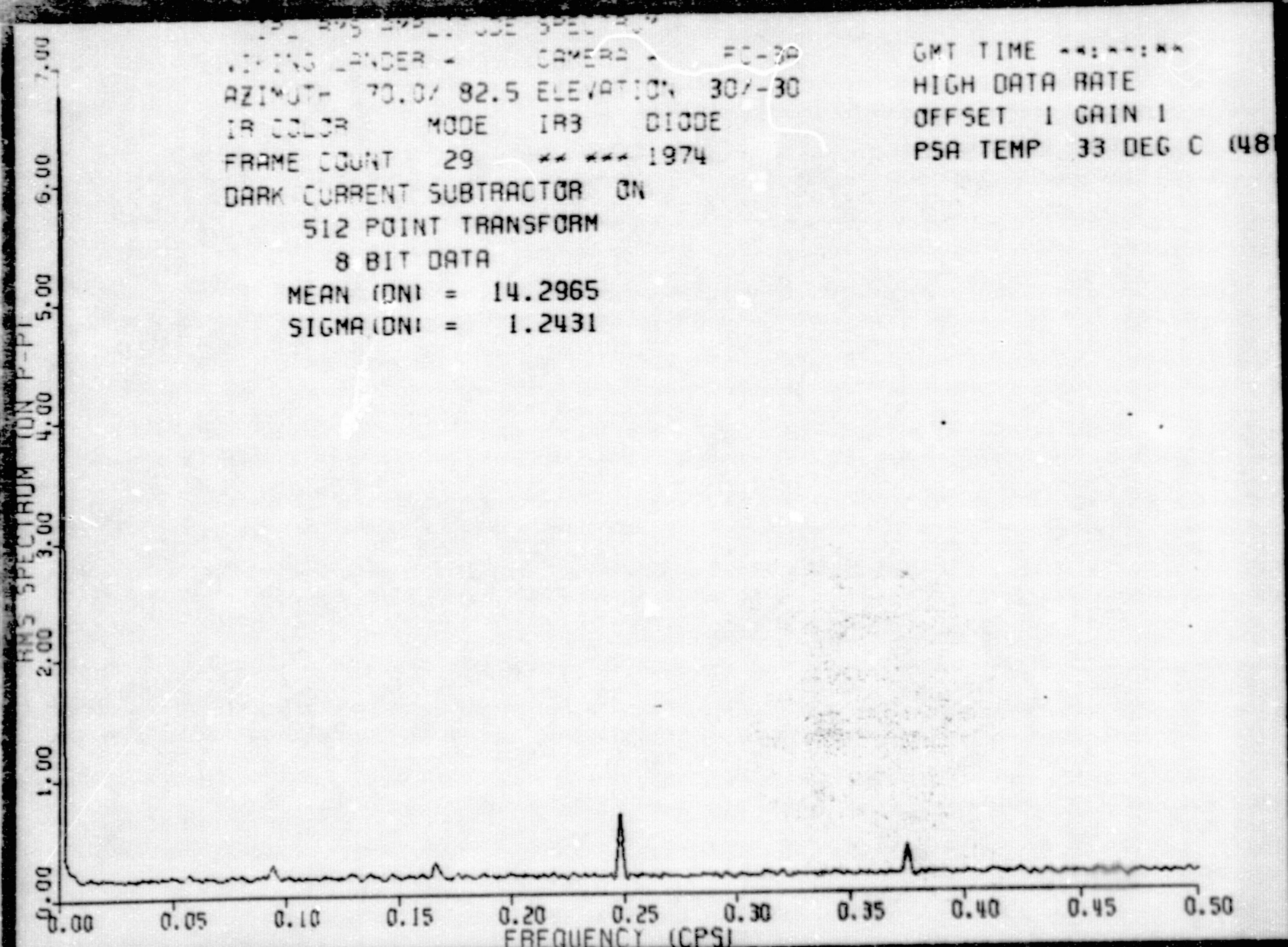

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA * FC-3A
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
VISUAL COLOR MODE
GREEN DIODE
FRAME COUNT 28
** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 54.9822
SIGMA(DN) = 0.8083
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 2
PSA TEMP 35 DEG C (49
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
VISUAL COLOR MODE RED DIODE
FRAME COUNT 28 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 37.7844
SIGMA (DN) = 0.4326
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 2
PSA TEMP 35 DEG C (49
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

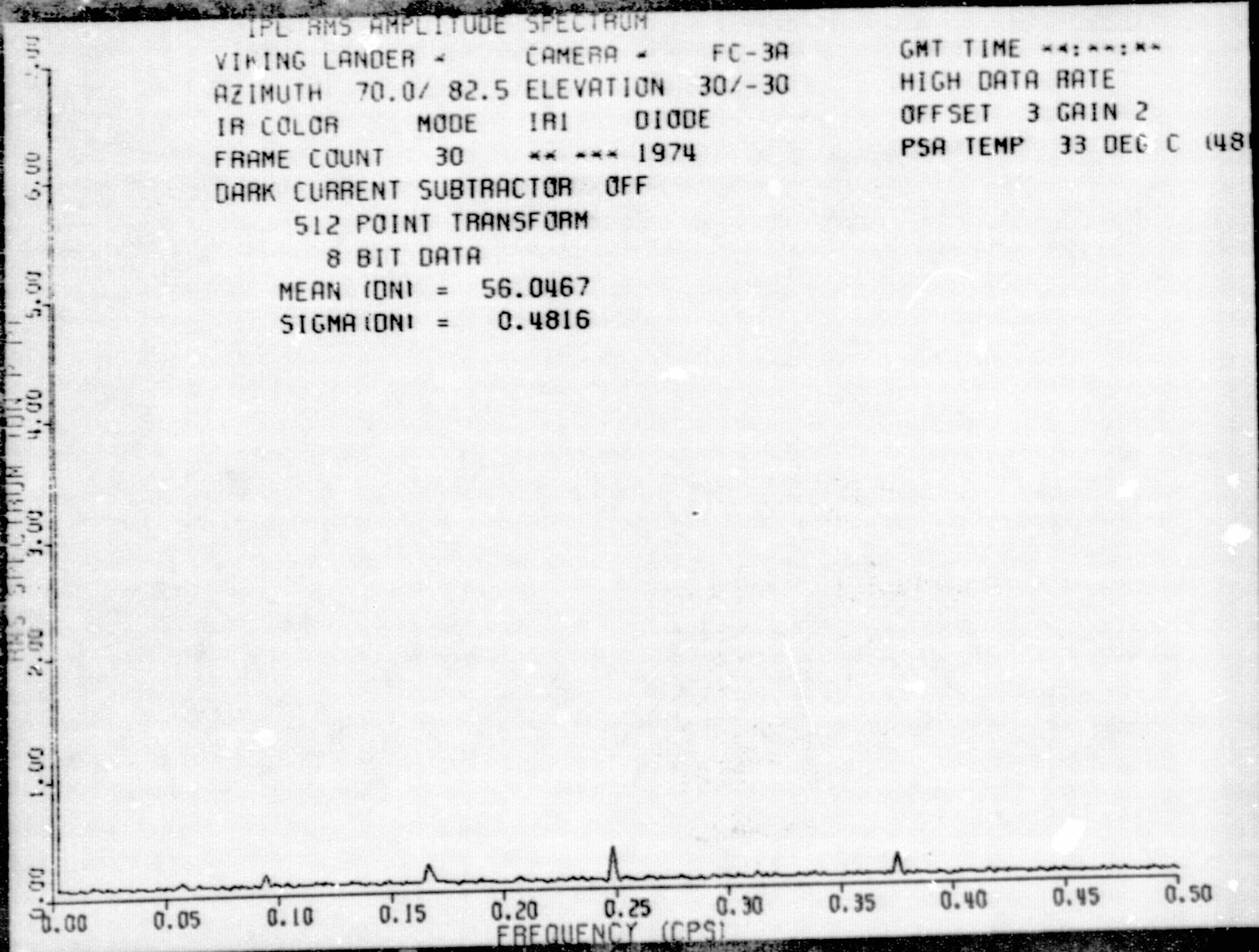

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5
ELEVATION 30/-30
HIGH DATA RATE
IR COLOR
MODE IR1
DIODE
OFFSET 1 GAIN 1
FRAME COUNT 29
** *** 1974
PSA TEMP 33 DEG C
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.3616
SIGMA(DN) = 1.0590
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



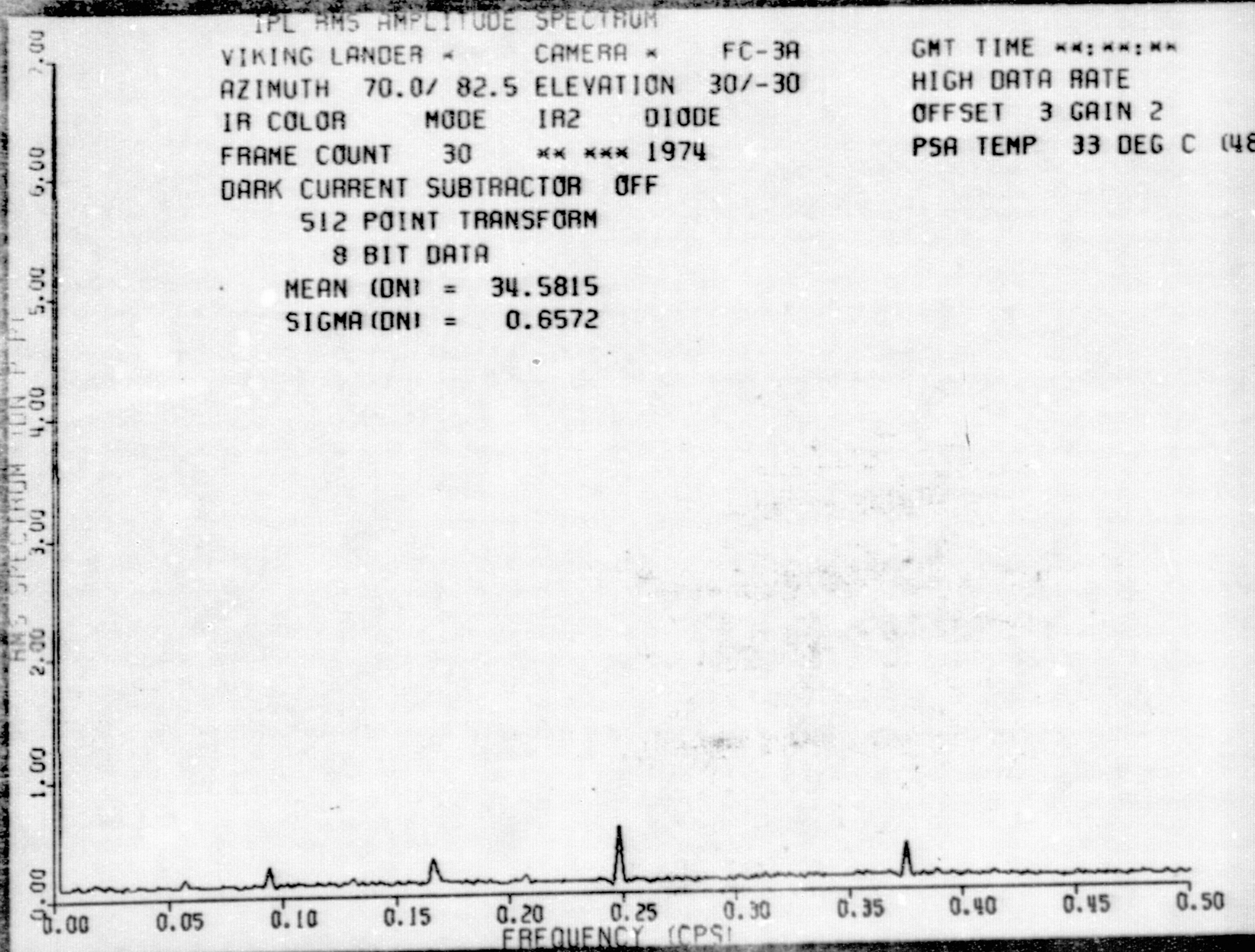
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR2 DIODE
FRAME COUNT 29 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 15.2125
SIGMA(DN) = 1.3327
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 33 DEG C (48
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

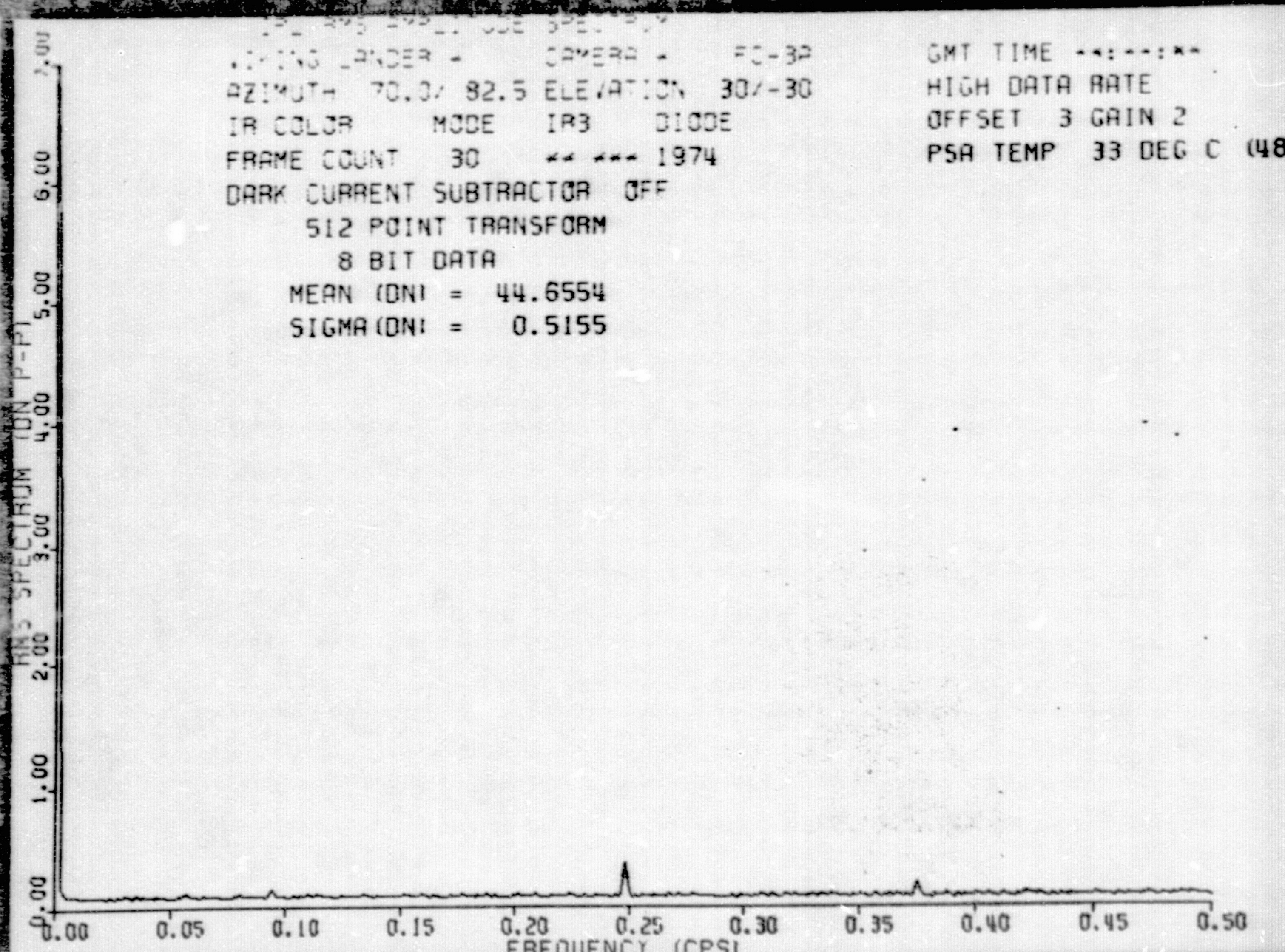


AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR3 DIODE
FRAME COUNT 29 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 14.2965
SIGMA (DN) = 1.2431
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 1
PSA TEMP 33 DEG C
RMS SPECTRUM (DN P-P)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50
FREQUENCY (CPS)

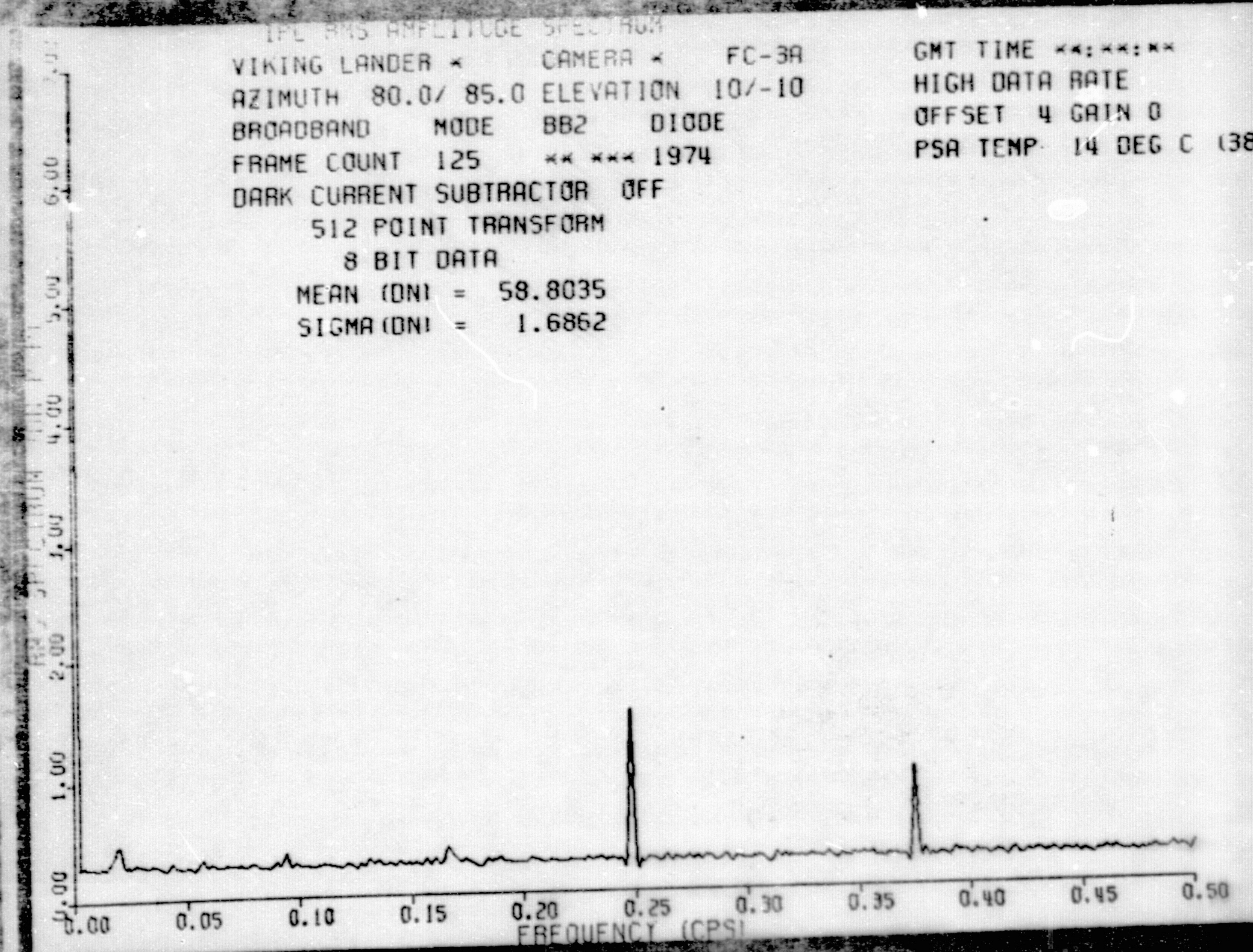


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR1 DIODE
FRAME COUNT 30 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 56.0467
SIGMA(DN) = 0.4816
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 2
PSA TEMP 33 DEG C (48
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

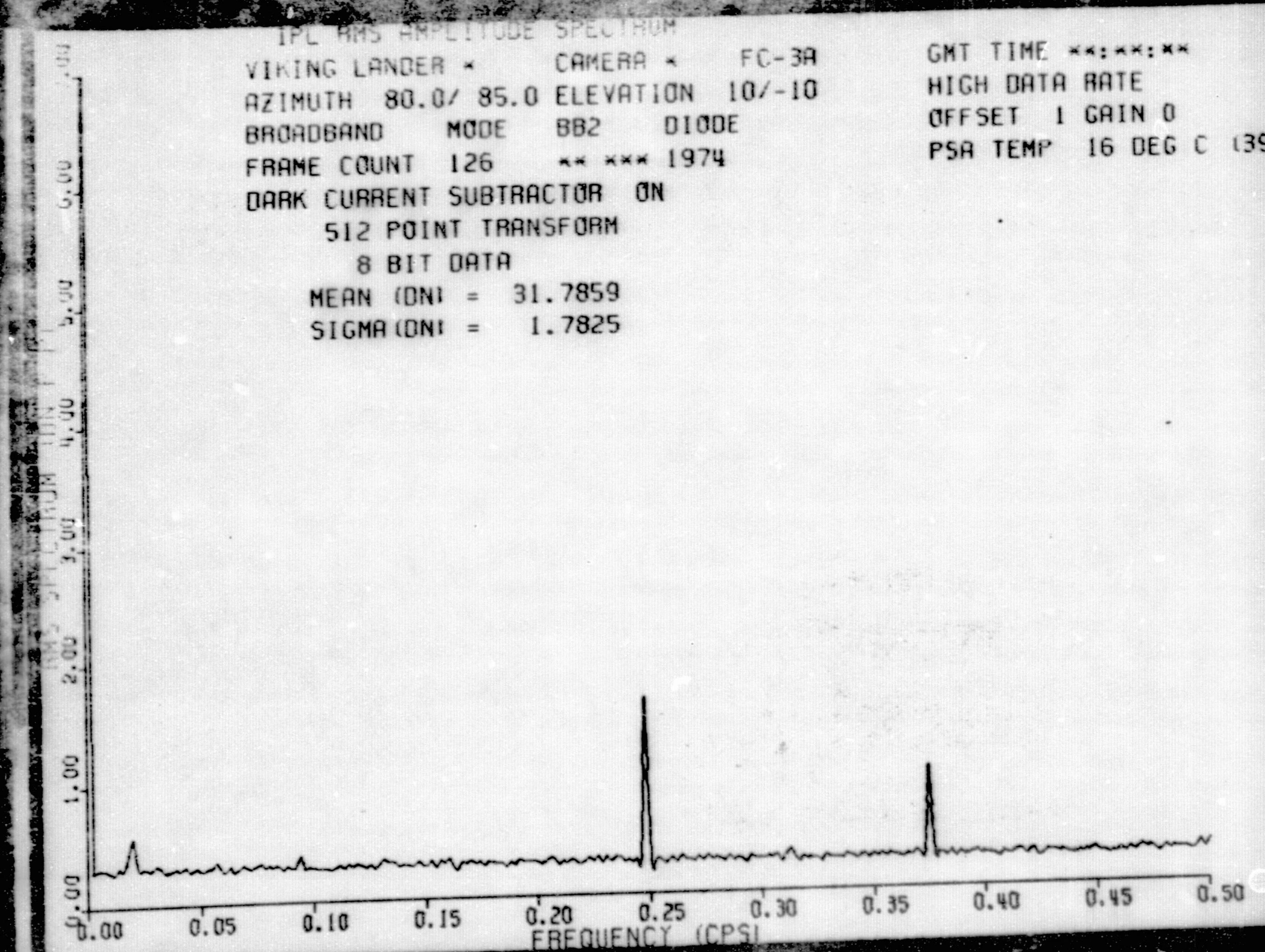

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
HIGH DATA RATE
IR COLOR MODE IR2 DIODE
OFFSET 3 GAIN 2
FRAME COUNT 30 ** *** 1974
PSA TEMP 33 DEG C (48
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 34.5815
SIGMA(DN) = 0.6572
0.00
1.00
2.00
3.00
4.00
5.00
6.00
7.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



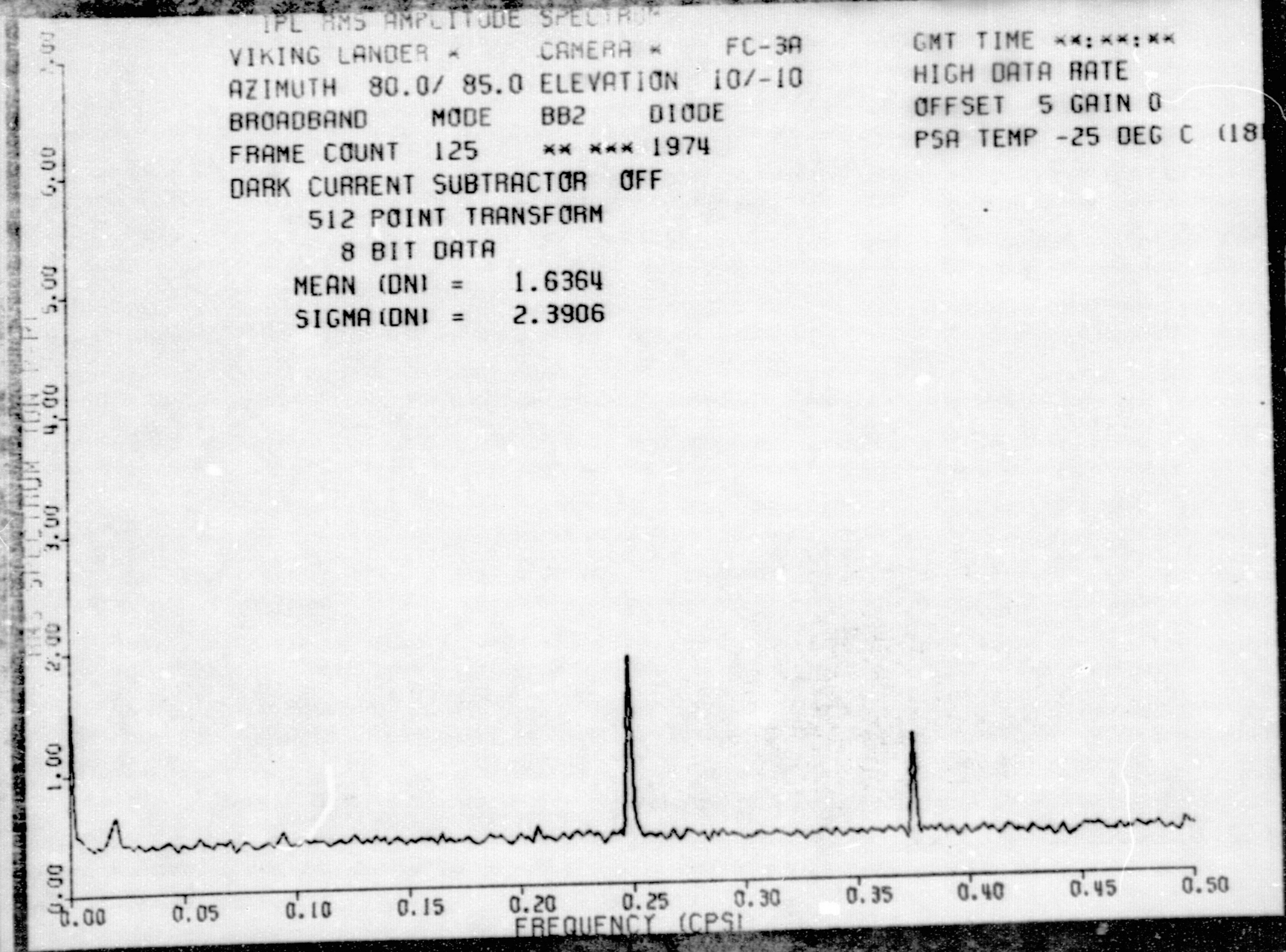
AZIMUTH 70.0/ 82.5 ELEVATION 30/-30
IR COLOR MODE IR3 DIODE
FRAME COUNT 30 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 44.6554
SIGMA (DN) = 0.5155
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 3 GAIN 2
PSA TEMP 33 DEG C
RMS SPECTRUM (DN P-P)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)



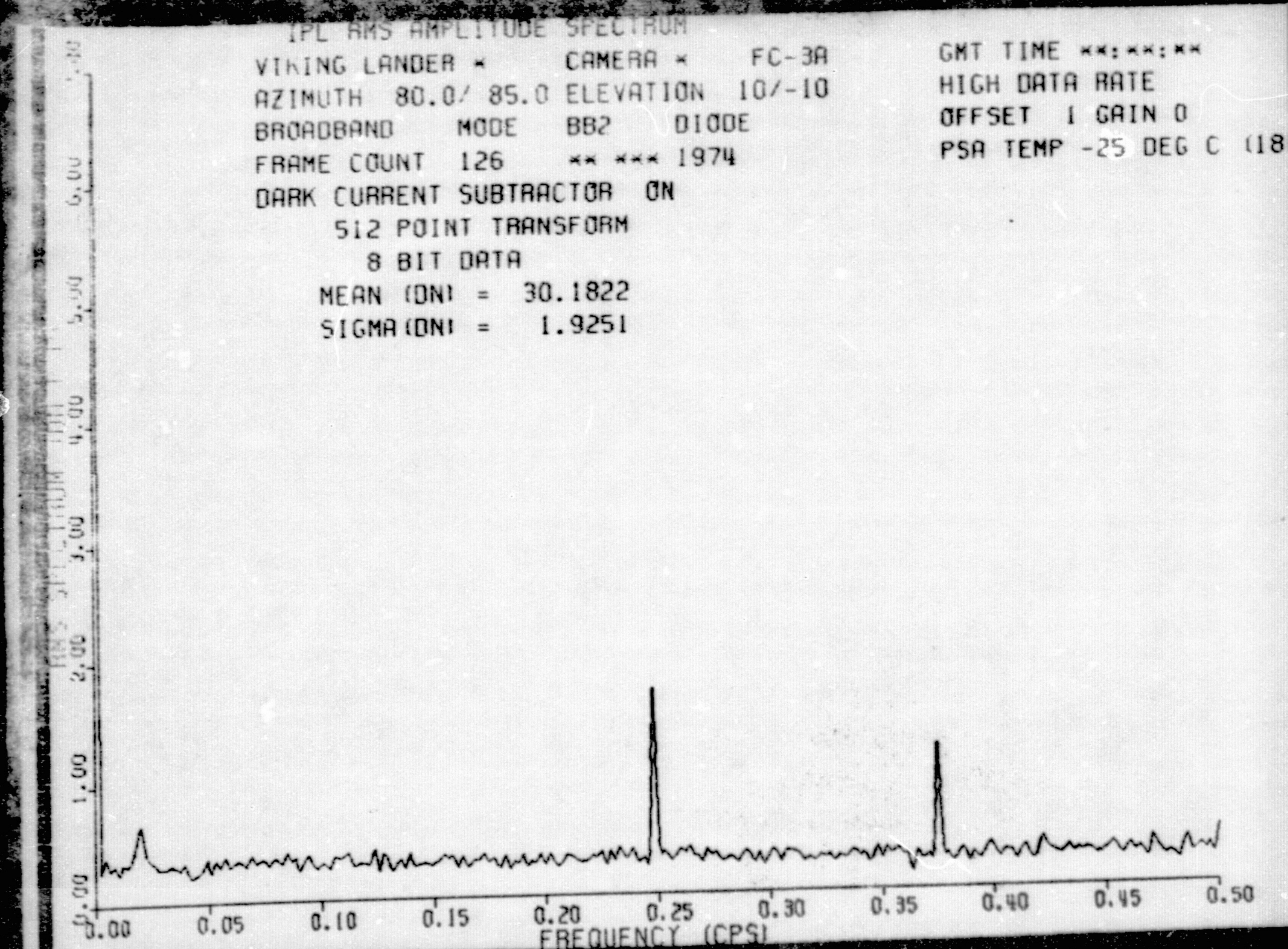
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 125 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 58.8035
SIGMA(DN) = 1.6862
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 4 GAIN 0
PSA TEMP 14 DEG C (38
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

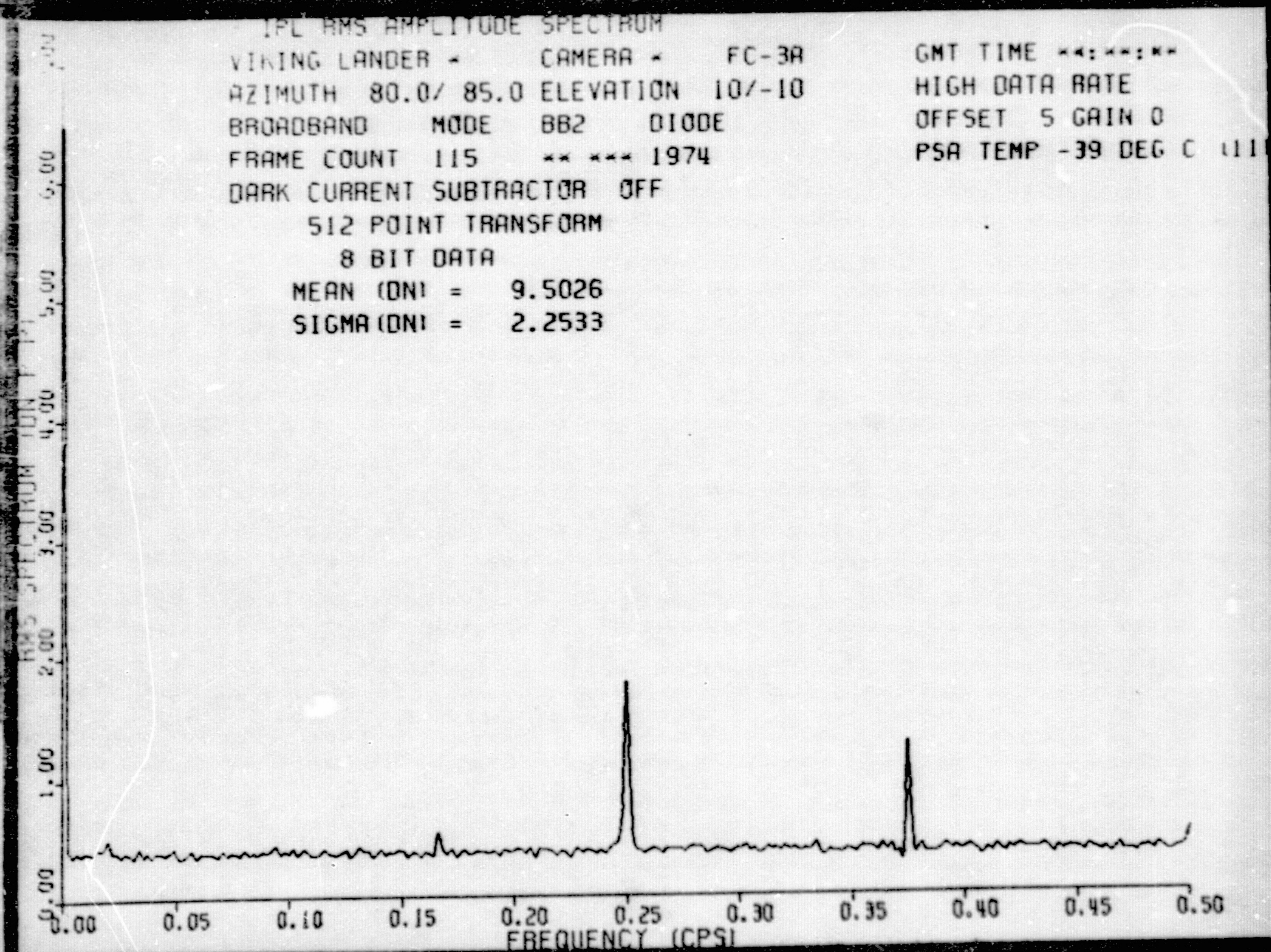


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 126 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 31.7859
SIGMA(DN) = 1.7825
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 0
PSA TEMP 16 DEG C (39
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)


IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 125 ** *** 1974
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 1.6364
SIGMA (DN) = 2.3906
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 5 GAIN 0
PSA TEMP -25 DEG C (18
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

779

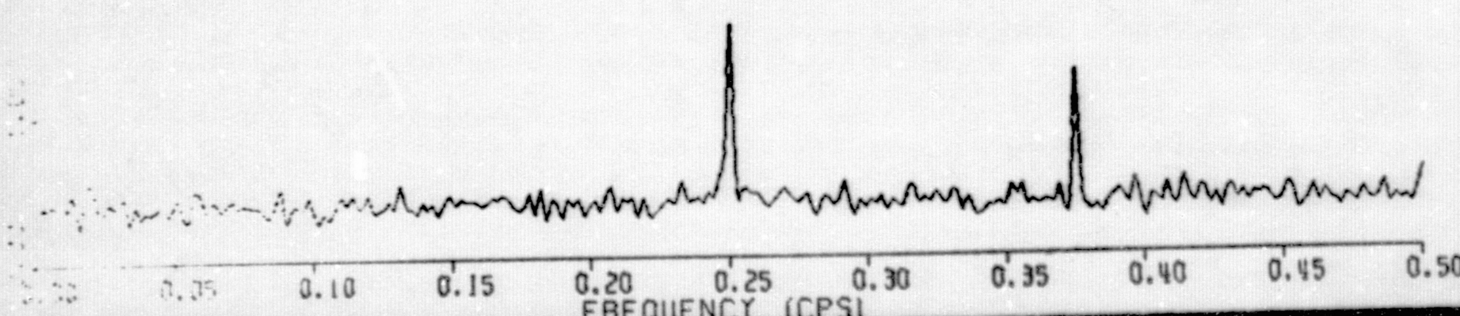

IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER * CAMERA * FC-3A
AZIMUTH 80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 126 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 30.1822
SIGMA(DN) = 1.9251
GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 0
PSA TEMP -25 DEG C (18
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

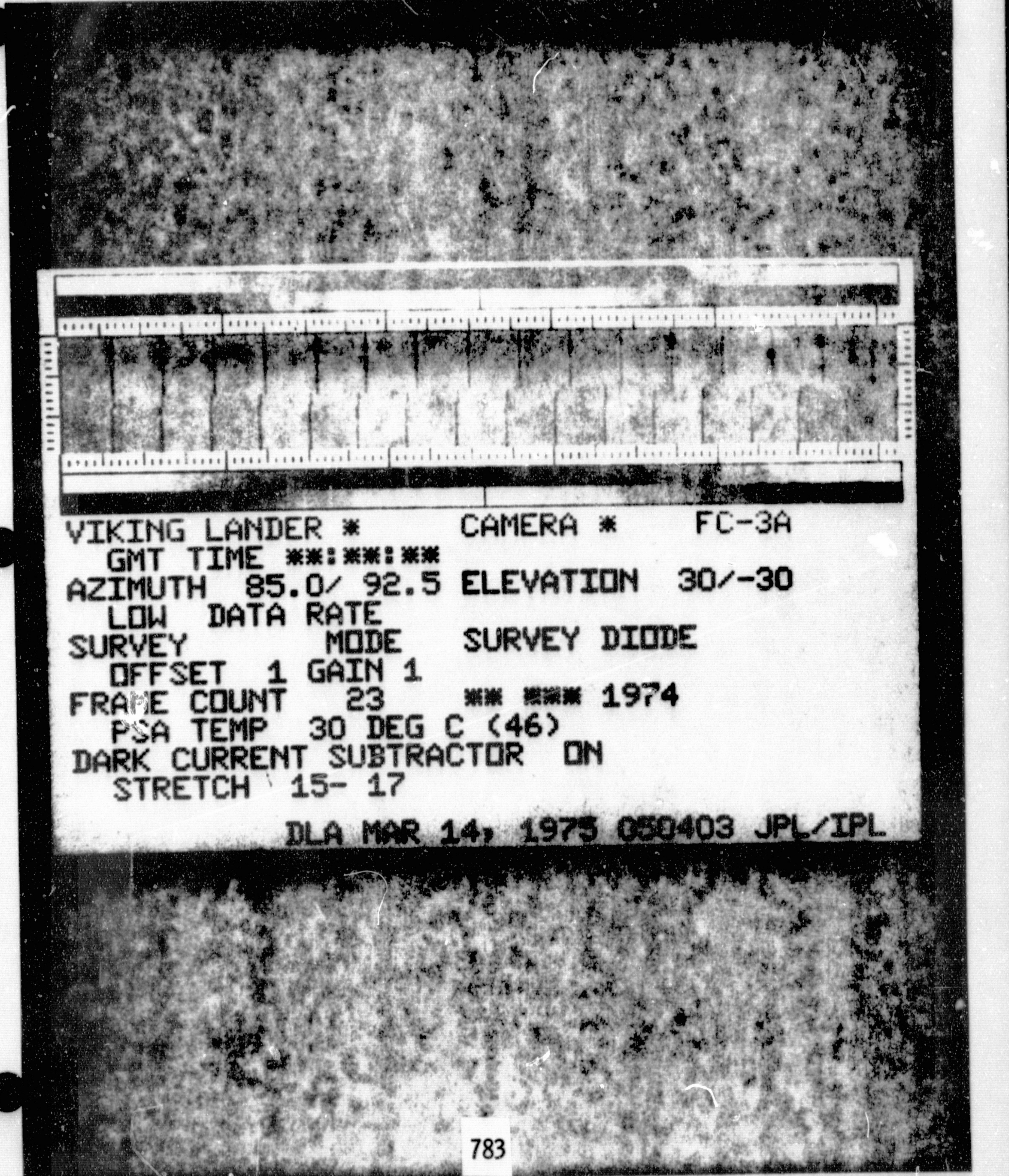


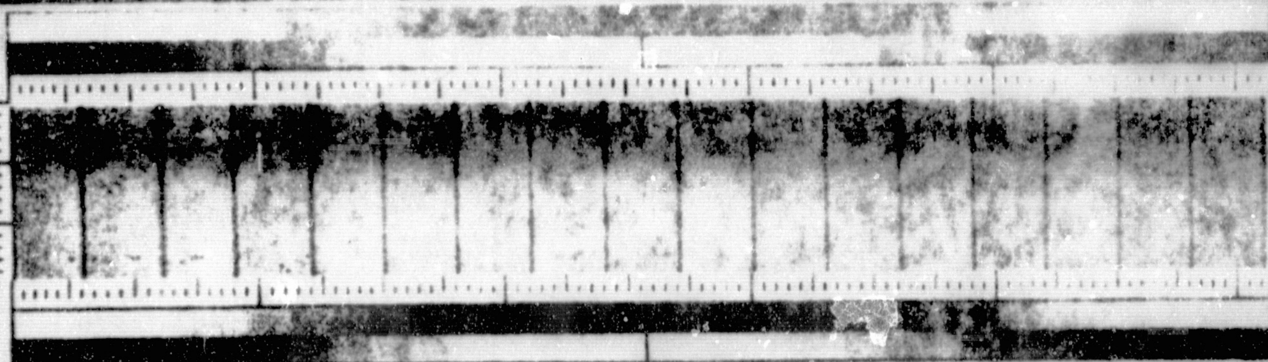
IPL RMS AMPLITUDE SPECTRUM
VIKING LANDER *
CAMERA *
FC-3A
GMT TIME **:**:**
AZIMUTH 80.0/ 85.0
ELEVATION 10/-10
HIGH DATA RATE
BROADBAND
MODE
BB2
DIODE
OFFSET 5 GAIN 0
FRAME COUNT 115
** *** 1974
PSA TEMP -39 DEG C
DARK CURRENT SUBTRACTOR OFF
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 9.5026
SIGMA(DN) = 2.2533
0.00
1.00
2.00
3.00
4.00
5.00
6.00
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
FREQUENCY (CPS)

RMS AMPLITUDE SPECTRUM
LANDER - CAMERA - FC-3A
80.0/ 85.0 ELEVATION 10/-10
BROADBAND MODE BB2 DIODE
FRAME COUNT 116 ** *** 1974
DARK CURRENT SUBTRACTOR ON
512 POINT TRANSFORM
8 BIT DATA
MEAN (DN) = 28.1106
SIGMA(DN) = 2.2158

GMT TIME **:**:**
HIGH DATA RATE
OFFSET 1 GAIN 0
PSA TEMP -39 DEG C (11

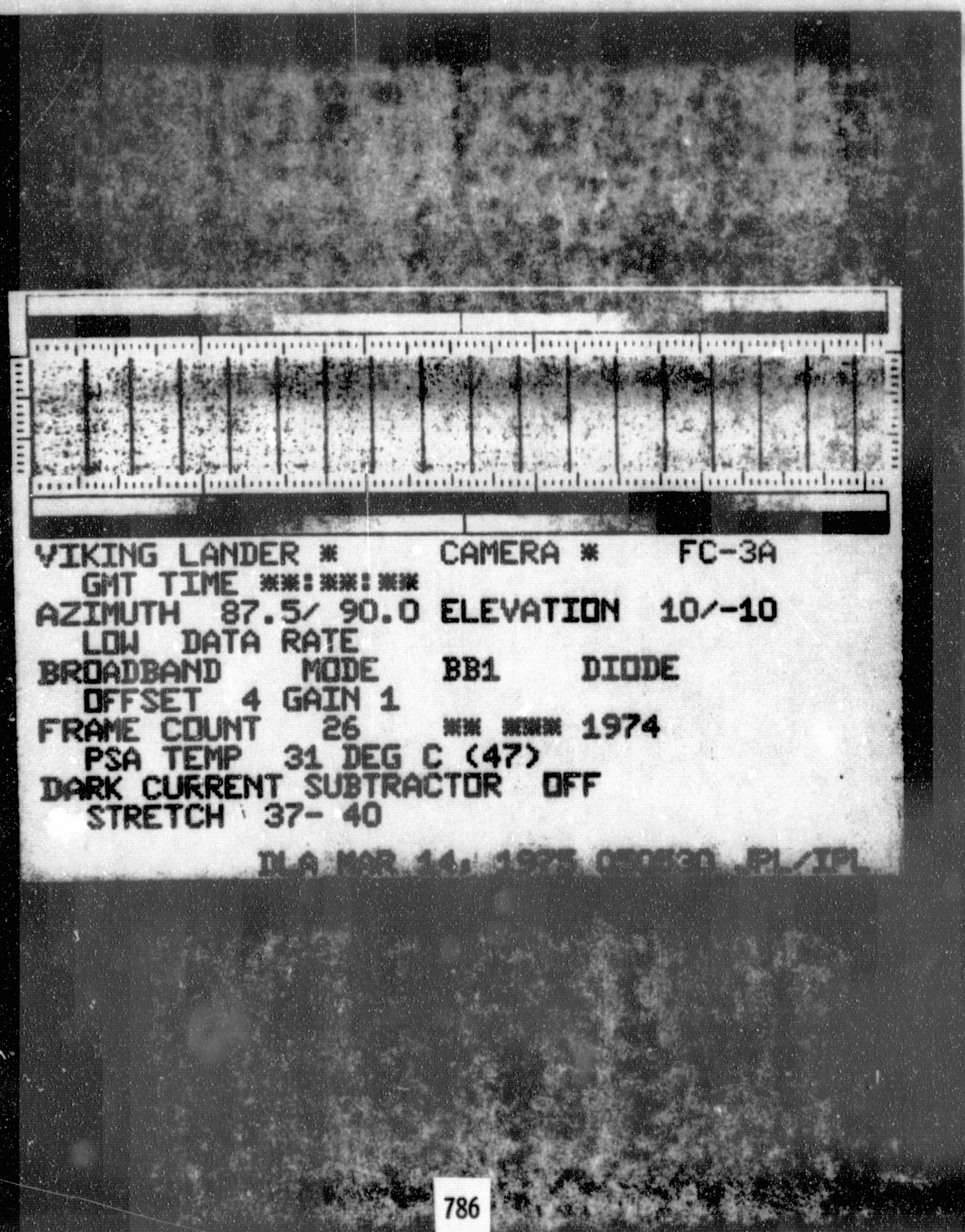



VIKING LANDER *   CAMERA *   FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
LOW DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 1 GAIN 1
FRAME COUNT 23 ** *** 1974
PSA TEMP 30 DEG C (46)
DARK CURRENT SUBTRACTOR ON
STRETCH 15- 17
DLA MAR 14, 1975 050403 JPL/IPL



VIKING LANDER * CAMERA * FC-3A
GMT TIME **:**:**
AZIMUTH 85.0/ 92.5 ELEVATION 30/-30
LOW DATA RATE
SURVEY MODE SURVEY DIODE
OFFSET 4 GAIN 1
FRAME COUNT 24 ** *** 1974
PSA TEMP 31 DEG C (47)
DARK CURRENT SUBTRACTOR OFF
STRETCH 42- 44

DLA MAR 14, 1975 050432 JPL/IPL


VIKING LANDER * CAMERA * FC-3A
GMT TIME **:**:**
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
LOW DATA RATE
BROADBAND MODE BB1 DIODE
OFFSET 4 GAIN 1
FRAME COUNT 26 ** *** 1974
PSA TEMP 31 DEG C (47)
DARK CURRENT SUBTRACTOR OFF
STRETCH 37- 40

Merrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM

DATE: 2/10/75

CALIBRATION RUN POINT SPREAD FUNCTION FC-3A CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Listings of the pixel matrix of an area around the illuminated pin hole target.

Two listings for each of the broadband, visual color and IR diodes are included, the channel and gain settings noted. The exception being the BB3 channel which was listed three times because of a secondary peak in the point spread function.

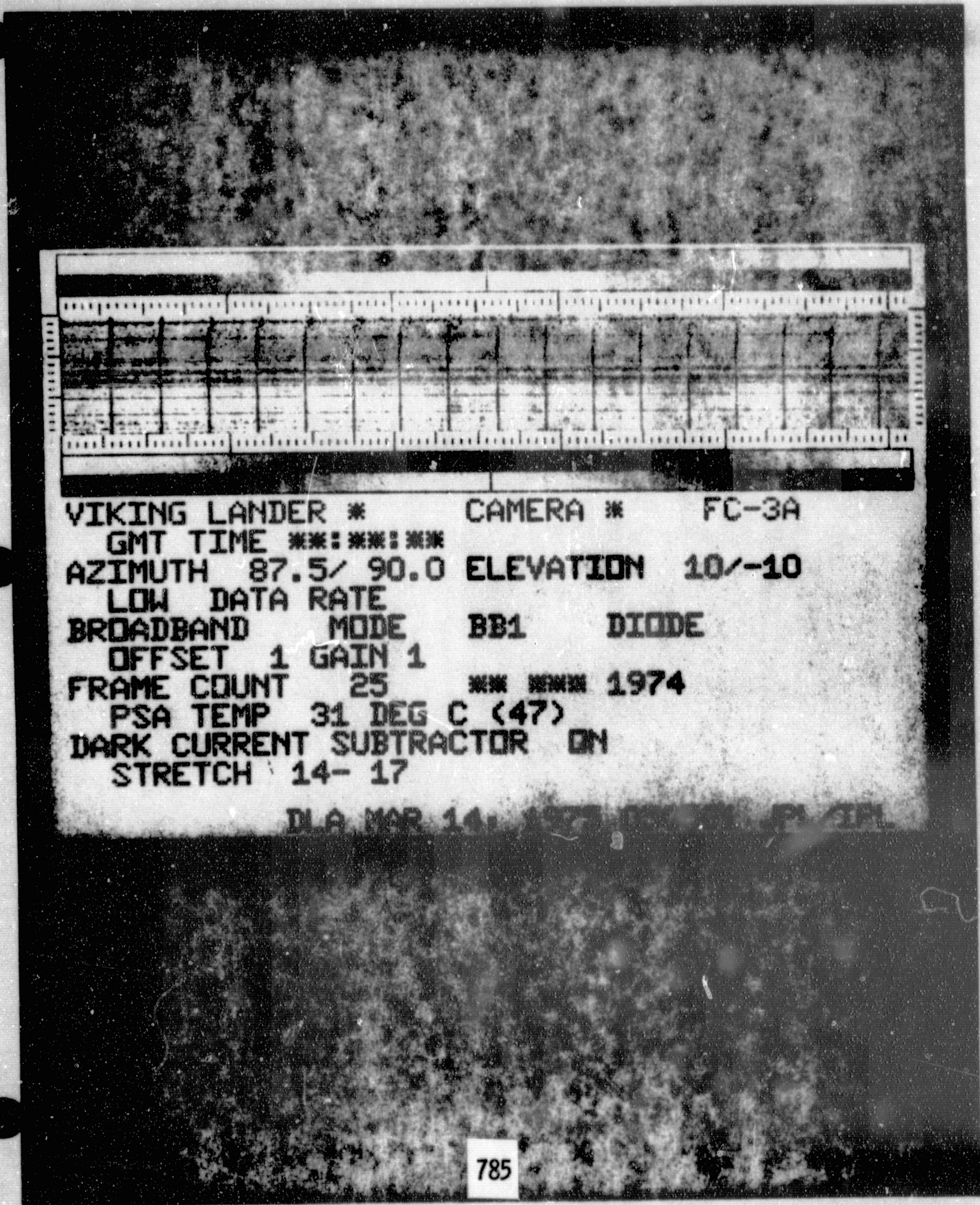
Results Summary attached.

TEST DESCRIPTION The 0.150" pin hole target was scanned at low and high gain settings for each diode. Target distance = 2.62 meters. Offset = 1 for all frames.

DATA PROCESSING DESCRIPTION 30 x 15 pixel listings were generated for each frame centered on the image of the pin hole.

ANALYST Michael E Merrill

APPROVAL Michael R. Wolf


VIKING LANDER * CAMERA * FC-3A
GMT TIME **:**:**
AZIMUTH 87.5/ 90.0 ELEVATION 10/-10
LOW DATA RATE
BROADBAND MODE BB1 DIODE
OFFSET 1 GAIN 1
FRAME COUNT 25 ** *** 1974
PSA TEMP 31 DEG C (47)
DARK CURRENT SUBTRACTOR ON
STRETCH 14- 17
DLA MAR 14,

RESULTS SUMMARY:

8 x 10 hard copies made of the point spread frames showed a secondary peak for the BB3 diode. This area was subsequently listed to get quantitative data. These listings, along with the calibration data, indicate the radiance ratio of the peaks to be 159:1 and that the secondary peak is 26 pixels lower in elevation than the primary one. There is no difference in azimuth.

This may cause "ghosting" in BB3 images.

...ACEAND ...
...AME CCUNT 1 ** *** 1974 PSA TEMP 28 DEG C (45) C
...ARK CURRENT SUBTRACTCR CN L

141832 3 LIST
INFUT NL= 135 NS= 512
VIKING LANCER * CAMERA * FC3A GMT TIME **C**C** C
AZIMUTH 87.5/ 92.5 ELEVATION 10/-10 HIGH DATA RATE C
BRCADBAND MCDE BB1 CIODE OFFSET 1 GAIN 5 C
FRAME CCUNT 1 ** *** 1974 PSA TEMP 28 DEG C (45) C
DARK CURRENT SUBTRACTCR CN L

VIKING LANCER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUBTRACTCR ON BB1 GAIN 5 L

SAMP	250		252		254		256		258		260		262		264
LINE															
70	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
71	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
72	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
73	0	0	0	0	0	0	C	C	C	C	C	0	0	0	0
74	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
75	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
76	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
77	0	0	0	0	0	0	0	C	C	C	0	C	0	0	0
78	0	0	0	0	0	0	C	C	C	C	C	C	C	0	0
79	0	0	0	0	1	0	0	C	C	C	C	C	C	0	0
80	0	0	0	1	0	1	C	C	C	0	0	0	0	0	0
81	0	0	0	1	0	1	0	C	C	C	C	C	C	C	0
82	0	0	0	0	7	18	11	2	C	C	C	C	C	0	0
83	0	0	0	2	21	$\boxed{45}$	25	3	C	C	C	C	0	0	0
84	0	0	0	3	12	25	13	2	C	C	C	C	0	0	0
85	0	0	0	0	1	2	1	C	C	C	C	0	C	C	0
86	0	0	0	0	0	0	0	0	C	C	C	0	0	0	0
87	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0
88	0	0	0	0	0	0	0	C	C	C	1	C	0	0	0
89	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0
90	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
91	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
92	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
93	0	0	0	0	0	0	C	C	C	C	C	C	C	0	0
94	0	0	0	0	0	0	0	C	C	C	0	0	C	0	0
95	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
96	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
97	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0
98	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
99	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0

VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTION ON   1B1 GAIN 3   L

LINE \ SAMP	250		252		254		256		258		260		262		264
70	3	4	4	4	3	3	4	3	3	5	4	4	3	3	4
71	4	4	4	4	4	4	3	4	3	4	4	4	3	4	4
72	4	4	4	4	3	5	3	3	3	3	4	4	4	4	3
73	4	4	4	4	4	4	4	4	3	4	4	4	3	4	4
74	3	4	4	4	3	4	4	3	4	4	4	4	3	4	4
75	4	3	3	3	4	4	4	4	4	3	4	4	3	4	4
76	4	4	3	4	4	4	3	3	4	4	4	3	4	4	3
77	3	4	4	4	4	4	3	4	4	4	4	3	4	4	4
78	3	3	3	4	3	4	4	4	3	4	4	4	3	4	4
79	4	4	4	4	3	4	4	4	4	3	4	4	4	4	4
80	3	4	4	4	4	4	4	4	4	3	3	4	3	3	4
81	4	4	4	4	5	5	5	4	4	4	4	4	3	4	4
82	4	4	4	5	25	62	39	6	4	4	4	4	4	3	4
83	4	4	4	10	62	62	62	14	4	3	3	4	3	3	4
84	4	4	4	6	47	62	51	7	4	4	4	4	3	3	4
85	4	4	4	4	6	9	6	4	4	4	3	4	4	4	4
86	3	4	4	5	4	4	4	3	3	4	4	4	4	4	4
87	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4
88	4	3	4	5	4	4	4	4	4	4	3	4	4	3	4
89	4	4	3	4	4	3	3	4	4	4	3	4	3	4	4
90	3	4	3	4	4	3	4	4	3	4	4	4	4	3	4
91	4	3	4	4	4	3	4	4	5	4	3	4	3	3	4
92	4	3	4	4	4	3	3	4	4	4	4	4	3	4	3
93	4	4	3	4	4	3	4	3	4	4	5	4	3	4	4
94	4	3	3	4	3	4	4	4	3	4	4	3	3	3	4
95	3	3	3	4	3	3	4	4	3	4	3	4	3	3	4
96	3	4	4	4	3	4	4	4	4	4	4	3	4	4	4
97	3	5	4	4	4	4	4	4	4	4	3	4	4	4	4
98	3	3	4	4	4	3	3	4	3	4	4	3	4	4	4
99	4	4	4	4	4	3	5	4	3	3	4	4	3	4	4

VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   BB2 GAIN 5   L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	0	0	0	1	2	2	1	0	0	0	0	0	0	0	1
82	0	0	0	2	21	36	5	0	0	0	0	0	0	0	0
83	0	0	0	1	34	$\boxed{54}$	18	1	0	0	0	0	0	0	0
84	0	0	0	1	4	13	2	0	0	0	0	0	0	0	0
85	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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VIKING LANDER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON L

VIKING LANDER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON BB2 GAIN3 L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264
70	3	4	4	4	3	4	4	4	3	4	4	4	3	4	4
71	3	3	4	4	3	4	4	4	4	4	3	4	3	4	3
72	4	4	4	3	4	3	3	3	3	4	4	4	3	4	4
73	4	4	3	4	4	4	4	4	4	4	4	4	3	3	4
74	4	3	4	3	4	4	4	3	3	3	4	4	4	4	4
75	3	4	4	4	3	3	4	4	4	3	4	4	3	4	4
76	4	3	4	4	4	4	4	3	4	4	3	3	4	4	4
77	4	3	3	4	4	4	4	4	3	4	4	4	4	4	4
78	3	4	4	3	4	4	4	3	4	3	4	4	4	4	4
79	3	3	4	4	4	4	4	4	3	4	4	4	3	4	4
80	3	4	4	4	4	4	4	4	3	4	3	4	4	3	4
81	4	4	4	5	8	7	5	4	4	4	4	3	4	4	4
82	4	4	4	7	62	62	25	4	4	4	4	3	3	3	3
83	4	4	4	6	62	62	54	4	4	5	3	4	4	3	4
84	4	4	4	4	17	44	6	4	4	3	3	4	3	4	4
85	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4
86	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
87	4	3	4	4	3	4	4	4	4	4	3	4	3	3	4
88	4	3	3	4	4	3	4	3	4	3	3	4	3	4	3
89	3	4	4	3	4	4	4	3	4	4	3	3	4	4	4
90	4	4	4	4	3	3	4	4	4	4	4	4	4	3	4
91	3	3	4	4	3	3	4	4	4	4	4	4	4	4	4
92	4	4	4	4	4	4	3	4	4	4	4	4	3	3	4
93	3	4	4	3	4	4	3	3	4	4	4	3	3	4	3
94	4	3	4	4	4	4	3	3	3	4	4	3	3	4	3
95	4	4	3	4	3	3	4	4	4	3	4	4	4	3	4
96	3	4	3	4	4	3	3	4	4	4	4	3	4	4	4
97	4	4	4	4	3	4	3	4	4	4	3	3	4	4	4
98	4	4	3	4	3	4	4	3	4	4	3	4	3	4	4
99	4	4	4	3	4	4	4	4	4	3	4	4	4	3	4

VIKING LANCER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUETRACTCR ON BB3 GAINE L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264
70	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
71	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0
72	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
73	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
74	0	0	0	0	0	0	0	C	C	C	0	C	0	0	0
75	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
76	0	0	0	0	0	0	0	C	C	C	0	C	0	0	0
77	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
78	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
79	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0
80	0	0	0	0	0	0	0	C	C	0	0	0	0	0	0
81	0	0	0	0	0	0	0	C	C	C	C	C	C	C	0
82	0	0	0	0	0	0	C	1	1	1	C	C	C	0	0
83	0	0	0	0	0	0	1	5	9	4	1	C	C	0	0
84	0	0	0	0	0	0	3	19	33	17	2	1	0	0	0
85	0	0	0	0	0	0	3	2C	$\boxed{37}$	17	2	0	C	0	0
86	0	0	0	0	0	0	1	7	12	5	1	0	C	0	0
87	0	0	0	0	0	0	0	1	1	1	C	0	C	0	0
88	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
89	0	0	0	0	0	0	C	C	C	C	C	C	0	0	0
90	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
91	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
92	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
93	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
94	0	0	0	0	0	0	0	C	C	C	C	C	C	0	0
95	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0
96	0	0	0	0	0	0	0	C	C	0	0	C	0	0	0
97	0	0	0	0	0	0	0	C	C	C	C	0	C	0	0
98	0	0	0	0	0	0	0	C	C	C	C	C	0	0	0
99	0	0	0	0	0	0	0	C	C	C	C	0	0	0	0

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VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   BB3 GAIN3   L

LINE \ SAMP	250		252		254		256		258		260		262		264
70	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
71	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4
72	4	4	4	3	4	4	4	3	4	4	4	4	4	3	4
73	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
74	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4
75	4	4	4	4	4	4	4	4	4	4	4	4	3	3	4
76	4	4	4	4	4	3	3	3	4	4	4	4	4	4	4
77	4	4	4	4	4	3	4	4	4	4	4	4	3	4	4
78	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4
79	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
80	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
81	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
82	4	4	4	4	4	4	5	5	6	5	5	4	4	4	4
83	4	3	4	4	4	4	5	18	27	19	7	5	4	4	4
84	4	4	4	4	4	4	9	60	62	62	10	5	4	4	4
85	4	4	4	4	4	4	9	62	62	62	17	5	4	4	4
86	4	3	4	4	3	4	5	21	49	28	6	4	4	4	4
87	4	4	3	4	4	4	4	4	6	5	4	5	4	4	4
88	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
89	4	4	4	4	4	4	4	3	4	4	4	4	3	4	4
90	4	3	4	4	4	4	4	3	4	4	4	4	3	4	4
91	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
92	4	4	4	4	4	4	4	4	4	4	3	3	3	4	4
93	4	4	4	4	4	4	4	4	3	4	4	4	3	4	4
94	4	3	4	4	4	4	4	4	4	4	3	4	4	4	4
95	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4
96	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4
97	4	3	4	4	4	4	4	3	4	4	4	4	4	4	4
98	4	4	4	4	4	4	4	4	4	4	3	4	3	3	4
99	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

VIKING LANDER * CAMERA * FC3A GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON L

BB3 GAIN5

LINE \ SAMP	200		202		204		206		208		210		212		214		216
60	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0

LINE \ SAMP	230		232		234		236		238		240		242		244		246
52	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
63	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

0**   C
           L

BB3 GAIN 5 FC-3A

212		214		216		218		220		222		224		226		228	
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
242		244		246		248		250		252		254		256		258	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	9	4
0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	19	33	17
0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	20	$\boxed{37}$	17
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	12	5
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

VIKING LANDER * CAMERA * FC3A GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON BB3 GAIN 3 I

SAMP / LINE	230		232		234		236		238		240		242		244		246
50	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
51	3	3	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
52	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4
53	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	3
54	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
55	3	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
56	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
57	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
58	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4	4
59	4	3	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
60	4	4	4	3	4	4	4	4	4	4	3	4	4	4	4	4	4
61	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
62	4	3	4	4	4	4	4	4	3	4	4	3	4	4	4	4	4
63	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
64	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
65	4	4	4	3	4	4	3	4	4	4	4	4	4	4	3	4	4
66	4	4	4	3	4	4	3	4	3	4	4	4	4	4	4	4	4
67	3	4	4	4	4	4	4	4	3	4	4	4	3	4	4	3	4
68	4	3	4	4	4	4	4	4	4	3	4	4	4	4	3	4	4
69	3	4	4	3	4	4	3	4	4	4	4	4	4	4	4	4	4
70	3	4	4	3	4	4	4	4	4	3	4	4	3	4	4	[illegible]	4
71	3	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
72	4	4	4	4	4	4	3	4	4	4	4	4	4	4	3	4	[illegible]
73	4	4	4	3	4	4	4	5	3	4	4	3	4	4	4	3	4
74	4	4	4	4	4	3	4	4	4	4	4	4	4	4	3	4	3
75	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	3
76	4	4	4	5	4	4	4	4	4	3	4	4	4	4	3	4	4
77	4	4	3	3	4	4	4	4	4	4	4	4	4	4	3	4	4
78	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
79	4	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4
80	4	4	3	4	4	4	4	4	3	4	4	4	4	3	3	4	4
81	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	4
82	4	4	4	4	4	4	4	4	3	4	4	4	4	3	3	4	4
83	4	4	4	5	4	4	4	4	4	3	4	4	4	4	4	4	4
84	4	5	5	5	4	4	4	4	3	3	4	4	4	4	3	4	4
85	4	5	5	4	4	3	4	4	3	4	4	3	4	4	3	4	4
86	4	4	4	4	4	3	4	4	3	4	4	4	4	4	4	4	4
87	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
88	4	4	3	4	4	4	4	4	3	4	4	4	4	4	4	4	4
89	3	4	4	3	4	4	4	3	3	4	4	4	4	4	4	4	4
90	3	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	3
91	4	3	4	4	4	4	3	4	4	3	4	4	4	3	4	4	4
92	4	4	4	4	4	4	3	4	4	4	4	3	4	4	3	4	4
93	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
94	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	3
95	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3
96	4	4	4	3	4	4	4	4	3	4	4	3	4	4	4	4	4
97	4	4	4	3	4	3	4	3	4	4	4	4	4	4	4	4	[illegible]
98	4	5	4	4	4	[illegible]	4	4	4	4	4	4	4	4	4	4	[illegible]
99	4	3	4	4	4	4	[illegible]	4	[illegible]	4	4	4	4	4	4	4	

797

C
L

FC-3A BB3 GAIN3

242		244		246		248		250		252		254		256		258	
4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	3	4	4
[illegible]	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4
4	3	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
4	4	4	4	3	4	4	3	4	4	4	4	4	4	4	3	4	4
4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4	4	4
4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4	4	4
4	4	3	4	4	4	4	4	3	3	4	3	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	3	4	4	5	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	3	4	4	4	3	4	4	4	4
4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	3	4	4	4	4	4	3	4	4	4	4
3	4	4	3	4	4	4	4	4	4	3	4	4	4	3	4	4	4
4	4	3	4	4	4	4	3	4	3	4	4	4	4	3	4	4	3
4	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
4	4	3	4	4	4	4	3	4	4	4	3	4	4	4	3	4	4
4	4	4	3	4	4	4	3	4	4	4	4	4	4	4	4	4	4
4	4	3	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4
4	3	4	4	3	3	3	4	4	4	4	4	4	4	4	4	4	4
4	4	3	4	4	4	4	3	4	4	4	4	4	3	3	3	4	4
4	4	3	4	4	4	4	3	4	4	4	4	4	3	4	4	4	4
4	4	4	4	4	4	4	3	4	4	4	4	3	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
4	3	3	4	4	4	4	5	4	4	4	4	4	4	4	4	4	4
4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	3	3	4	4	4	4	3	4	4	4	4	4	4	5	5	6	5
4	4	4	4	4	3	4	4	4	3	4	4	4	4	5	18	37	19
4	4	3	4	4	4	4	3	4	4	4	4	4	4	9	60	62	62
4	4	3	4	4	4	4	3	4	4	4	4	4	4	9	62	62	62
4	4	4	4	4	3	4	4	4	3	4	4	3	4	5	21	49	28
4	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4	4	5
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
3	4	4	4	3	4	4	3	4	3	4	4	4	4	4	3	4	4
4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
4	4	4	3	4	4	4	3	4	4	4	4	4	4	4	4	3	4
4	4	4	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4
4	4	4	4	3	3	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	3	4	4	4	3	4	4	4	4	4	3	4	4
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
4	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4

VIKING LANDER * CAMERA * FC3A GMT TIME **0**0** C
DARK CURRENT SUBTRACTOR ON BB4 GAIN5 L

SAMP / LINE	250		252		254		256		258		260		262		264
70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	0	0	0	0	0	0	0	1	1	1	1	1	0	0	0
81	0	0	0	0	0	0	1	2	5	4	2	1	0	0	0
82	0	0	0	0	0	1	3	8	12	10	5	1	0	0	0
83	0	0	0	0	0	1	4	11	14	15	9	3	0	0	0
84	0	0	0	0	0	1	3	10	14	15	10	3	1	0	0
85	0	0	0	0	0	0	2	6	10	10	6	2	0	1	0
86	0	0	0	0	0	0	1	2	3	4	2	1	0	0	0
87	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
91	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
92	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
95	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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VIKING LANCER * CAMERA * FC3A GMT TIME **C**C** C

DARK CURRENT SUETRACTCR CN BB4 GAIN 3 L

SAMP / LINE	250		252		254		256		258		26C		262		264
70	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4
71	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4
72	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
73	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4
74	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4
75	4	4	4	4	4	4	3	3	4	4	4	4	4	4	4
76	4	4	3	4	4	4	4	3	4	3	3	4	4	4	4
77	4	3	4	4	4	3	4	3	4	4	4	4	4	4	4
78	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
79	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4
80	3	5	4	4	4	4	4	4	5	5	4	4	4	4	4
81	4	4	4	4	4	4	5	1C	15	15	7	5	4	5	4
82	3	4	4	4	4	4	10	3C	47	4C	19	6	4	4	4
83	4	4	4	5	4	5	15	42	$\boxed{55}$	58	38	11	5	4	4
84	3	4	4	4	4	5	15	4C	55	58	4C	12	5	4	4
85	4	4	4	4	4	5	9	27	42	4C	22	6	4	4	4
86	4	4	4	4	4	4	5	8	15	14	7	4	4	4	4
87	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4
88	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
89	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
90	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
91	4	4	4	4	4	3	4	4	4	4	4	4	4	3	4
92	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
93	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
94	3	4	3	4	4	4	4	4	4	4	4	4	3	4	4
95	4	4	4	4	4	4	4	4	3	4	3	4	4	4	4
96	5	4	4	4	4	4	4	3	4	4	4	4	4	4	4
97	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
98	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
99	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4

VIKING LANDER * CAMERA * FC3A GMT TIME **0**C** C
DARK CURRENT SUBTRACTOR ON BLUE GAIN 3 L

SAMP LINE	250		252		254		256		258		260		262		264
15	3	4	4	4	3	3	3	4	4	5	3	3	3	3	4
16	4	3	4	4	3	3	4	4	4	3	3	4	4	3	4
17	4	4	3	4	4	4	4	4	4	3	3	3	4	3	4
18	3	4	4	4	4	4	4	4	3	4	3	3	4	4	4
19	4	3	4	4	3	4	3	4	4	4	4	3	3	4	4
20	3	3	3	4	4	4	4	4	3	4	4	4	3	3	4
21	3	3	3	3	4	4	3	4	4	3	3	4	4	3	4
22	4	3	3	4	4	4	4	5	4	3	4	3	4	4	3
23	3	4	3	3	4	3	3	4	4	4	4	4	3	3	4
24	4	4	3	4	3	3	4	4	3	3	4	4	3	4	4
25	4	3	3	4	3	3	3	4	3	3	4	4	4	3	4
26	4	4	3	4	4	4	4	3	4	4	4	3	4	3	4
27	4	4	4	3	4	3	4	3	4	4	3	3	4	4	3
28	4	4	3	3	3	4	4	4	4	4	4	4	3	4	4
29	4	4	4	3	3	4	$\boxed{33}$	31	4	4	3	4	3	3	4
30	4	3	4	4	3	4	5	6	4	3	3	4	4	3	3
31	4	4	4	4	4	4	3	4	4	4	4	4	3	3	3
32	3	4	3	4	3	4	4	3	3	4	4	4	4	4	4
33	4	3	4	4	3	3	4	3	4	4	4	4	3	4	3
34	3	3	3	4	4	4	3	4	4	3	3	4	4	3	3
35	3	3	3	4	4	3	3	3	4	3	4	4	4	4	3
36	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
37	3	4	4	4	4	4	3	4	3	4	4	3	4	4	4
38	4	4	4	4	3	4	4	3	3	3	4	4	4	3	4
39	4	4	3	5	3	3	3	3	4	3	4	4	3	3	4
40	4	3	4	4	3	4	3	3	4	3	4	4	3	4	4
41	3	4	4	4	4	4	4	3	4	4	3	3	4	4	3
42	3	4	4	4	3	4	4	4	3	4	4	4	4	4	4
43	4	3	3	4	3	4	3	3	4	4	3	3	3	3	4
44	4	4	4	4	4	3	4	3	3	4	3	4	3	3	3

801

12255 VICAR RETURNING TO ...
// LALCAD SYS...

VIKING LANDER * CAMERA * FC3A GMT TIME **0**C**
DARK CURRENT SUBTRACTOR ON

BLUE GAIN 1

LINE \ SAMP	250		252		254		256		258		260		262		264
15	14	17	15	13	12	16	14	13	16	17	16	13	15	15	13
16	14	13	15	18	15	16	17	12	15	17	16	15	14	14	15
17	17	15	14	15	15	13	16	16	17	16	16	15	14	14	14
18	16	15	14	17	16	15	15	15	14	16	13	17	14	16	15
19	16	16	16	15	15	16	15	13	13	15	16	15	13	16	15
20	15	14	17	14	14	17	14	11	13	15	17	14	16	16	14
21	14	14	13	17	14	14	15	13	13	16	16	15	15	15	15
22	15	15	15	15	16	15	14	13	14	16	16	16	14	14	15
23	17	15	14	15	15	13	14	13	13	17	18	13	16	15	15
24	14	16	16	15	17	13	14	12	14	15	14	14	13	16	15
25	12	15	15	17	13	15	18	14	14	14	16	15	15	14	16
26	15	12	15	16	14	13	14	15	14	14	16	16	15	15	17
27	16	14	16	15	17	15	17	15	14	14	14	17	15	14	14
28	16	14	15	18	14	16	18	16	14	16	15	15	15	17	15
29	14	15	15	16	14	15	62	62	15	14	15	15	16	14	17
30	15	15	18	17	14	16	19	22	16	12	16	15	17	15	14
31	16	16	16	17	14	11	13	14	14	13	14	17	14	16	15
32	14	15	14	15	14	17	15	13	15	14	13	15	15	15	14
33	15	14	14	14	15	16	15	14	17	16	12	14	17	15	16
34	12	15	14	17	17	14	16	14	13	15	14	14	13	14	16
35	15	14	16	15	14	15	15	15	14	14	15	14	14	14	16
36	14	15	14	13	13	14	13	15	16	13	15	15	14	15	14
37	14	15	14	14	15	17	16	13	14	15	14	13	15	14	15
38	15	16	13	17	13	15	16	15	15	16	16	16	14	15	14
39	14	15	14	15	14	16	16	16	14	15	15	15	15	15	17
40	15	16	15	17	13	15	14	14	15	13	13	17	15	16	17
41	12	16	13	18	16	12	15	16	15	13	13	17	15	12	16
42	19	12	15	15	17	17	15	13	18	15	16	16	14	15	14
43	15	13	14	14	14	14	16	14	15	16	16	15	15	13	14
44	16	15	15	13	13	13	15	16	15	18	14	16	13	13	15

802

802

VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C

DARK CURRENT SUBTRACTOR ON   GREEN GAIN 3   L

LINE \ SAMP	250		252		254		256		258		260		262		264
15	4	4	5	4	4	4	4	4	4	5	4	4	4	4	4
16	4	3	4	4	4	4	4	3	4	4	5	4	4	4	4
17	4	4	4	4	5	4	4	4	4	3	4	4	4	4	4
18	4	4	4	4	4	4	4	3	4	3	5	4	4	4	4
19	4	4	4	4	4	4	4	4	4	5	3	4	4	4	4
20	3	4	5	4	4	4	4	5	4	5	4	4	3	5	4
21	4	4	5	4	4	3	4	4	4	4	3	4	4	4	4
22	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4
23	5	4	4	4	4	4	4	4	4	4	4	4	4	5	4
24	4	4	4	4	5	4	4	4	4	4	4	3	4	4	5
25	3	4	4	4	4	4	5	3	4	4	4	4	3	3	4
26	4	4	4	4	4	4	4	4	4	4	5	4	4	4	4
27	4	4	4	4	4	5	4	4	4	4	4	4	4	4	5
28	5	4	3	4	4	4	5	4	4	5	4	4	4	4	4
29	3	4	4	4	4	5	$\boxed{46}$	41	5	4	4	4	4	4	4
30	3	4	4	4	4	4	6	5	5	4	4	4	4	4	4
31	4	3	4	4	4	4	4	4	4	4	4	4	3	4	5
32	4	4	4	5	4	3	3	4	4	4	3	5	4	3	3
33	4	4	4	4	4	4	4	4	5	4	5	4	4	4	4
34	4	4	4	4	4	5	4	4	4	3	5	3	4	5	4
35	4	5	4	5	4	4	4	4	4	4	4	4	4	4	4
36	4	4	4	5	4	4	3	4	4	4	4	5	4	4	4
37	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4
38	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4
39	4	4	4	5	3	4	4	4	4	4	4	4	4	4	4
40	4	4	4	4	4	3	4	4	5	4	4	4	4	4	4
41	5	5	4	5	4	4	4	4	4	4	4	4	4	4	4
42	4	4	4	4	4	4	4	4	4	5	3	5	4	4	4
43	4	4	4	4	4	4	4	4	4	4	4	4	3	5	5
44	5	4	4	5	4	4	4	4	4	4	4	4	4	5	4

VIKING LANDER * CAMERA * FC3A GMT TIME **0**C** C
DARK CURRENT SUETRACTCR ON GREEN GAIN 1 L

LINE \ SAMP	250		252		254		256		258		260		262		264
15	14	15	13	17	14	15	12	15	14	14	16	16	15	15	14
16	15	15	13	15	15	12	12	11	15	15	16	14	18	16	14
17	14	14	15	13	15	16	16	13	14	14	16	13	14	14	15
18	15	12	13	15	12	14	16	15	15	12	16	14	15	16	16
19	14	13	14	14	13	14	12	13	16	17	14	17	15	14	16
20	14	14	15	15	15	14	13	14	13	14	14	15	15	14	15
21	16	17	14	15	15	17	18	13	16	15	16	15	12	13	15
22	13	13	15	18	15	16	16	15	13	16	17	15	15	15	15
23	14	16	15	16	16	13	13	13	14	15	12	17	14	14	17
24	13	12	13	16	13	16	14	17	16	13	16	14	16	16	13
25	15	11	15	15	14	17	16	12	15	13	14	13	15	13	15
26	13	14	13	15	14	16	15	16	14	15	14	14	13	14	16
27	13	15	13	15	15	17	16	13	14	14	15	15	14	13	14
28	16	12	12	19	15	14	20	17	16	15	14	15	13	13	15
29	15	14	13	13	17	17	$\boxed{62}$	$\boxed{62}$	14	15	15	13	17	14	17
30	13	14	16	18	15	19	22	18	16	16	14	13	12	14	14
31	15	15	16	16	13	16	16	14	14	14	14	15	12	12	15
32	14	14	14	15	15	14	15	16	12	16	14	16	13	15	14
33	17	14	13	15	15	14	17	14	17	13	15	15	15	15	13
34	17	15	14	15	13	14	16	13	15	14	17	15	13	16	12
35	15	14	15	16	16	15	15	14	14	13	15	13	13	15	15
36	15	11	16	18	15	15	17	15	15	14	16	16	14	14	13
37	13	14	13	15	14	14	14	16	14	15	11	16	14	16	16
38	16	13	14	14	16	16	15	13	18	17	13	13	14	14	15
39	16	15	13	14	12	15	16	14	14	15	13	14	14	17	14
40	13	16	13	17	15	13	15	13	15	14	16	15	14	13	13
41	14	13	13	18	13	14	16	15	15	14	14	16	14	14	16
42	15	15	15	17	14	15	15	11	18	15	11	18	16	13	14
43	14	16	14	15	15	16	14	13	16	17	15	15	14	18	15
44	18	15	16	14	14	15	14	13	14	16	16	16	12	14	13

80X

VIKING LANDER * CAMERA *1 FC3A GMT TIME **C**C** C

DARK CURRENT SUBTRACTOR ON R&D GAIN 3 L

SAMP	250		252		254		256		258		260		262		264
LINE															
15	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
16	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
17	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
19	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
23	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
24	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
27	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
28	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
29	4	4	4	4	4	4	32	$\boxed{45}$	5	4	4	4	4	4	4
30	4	4	4	4	4	4	6	7	4	4	4	4	4	4	4
31	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
32	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
33	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
34	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
35	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
36	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
37	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
38	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
39	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
40	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
41	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
42	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
43	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
44	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   RED GAIN1   L

LINE \ SAMP	250		252		254		256		258		260		262		264
15	16	16	14	16	16	16	15	16	16	16	16	16	16	16	16
16	16	16	16	16	16	16	16	16	15	16	15	16	15	16	16
17	16	16	16	16	16	16	16	15	16	15	16	16	16	16	16
18	16	15	16	16	16	16	17	16	15	15	15	16	16	15	16
19	16	15	16	17	16	17	16	15	16	15	15	16	16	16	16
20	16	16	16	15	16	17	16	16	15	16	15	16	16	15	16
21	15	15	16	16	15	16	16	15	16	16	16	16	15	16	16
22	16	16	16	16	15	16	16	16	16	16	16	16	16	16	16
23	16	15	16	16	17	16	17	16	16	16	16	15	16	16	16
24	16	16	16	16	16	16	15	16	16	15	16	15	15	16	16
25	16	16	15	16	16	15	16	16	16	16	16	16	15	16	15
26	16	16	16	16	16	16	17	15	16	16	16	16	16	16	16
27	16	15	16	16	16	15	16	16	16	15	16	16	16	15	16
28	17	16	16	16	16	17	17	18	16	16	16	16	16	15	16
29	17	16	16	15	16	17	62	62	18	16	15	15	15	16	16
30	16	15	16	15	16	17	24	29	17	16	15	16	15	16	16
31	16	16	15	16	15	16	17	16	15	16	16	17	16	15	16
32	16	16	15	16	16	16	16	15	16	16	16	16	16	16	16
33	16	16	16	15	17	16	16	16	16	16	16	16	16	16	15
34	15	15	15	16	15	16	16	15	16	16	15	16	16	16	15
35	16	16	17	16	15	16	16	16	15	16	16	16	16	16	16
36	16	15	16	16	16	17	16	16	16	16	16	17	16	16	17
37	17	15	16	16	16	16	16	15	16	16	16	16	16	16	16
38	16	16	15	15	16	15	16	16	16	16	15	15	16	16	15
39	16	16	16	16	16	16	16	16	16	16	16	17	15	16	16
40	15	16	16	16	15	16	16	16	16	16	16	16	16	15	16
41	16	16	16	16	16	16	16	15	16	16	16	16	16	16	16
42	17	17	15	16	16	16	16	16	16	16	16	16	16	16	16
43	16	16	16	16	16	16	16	15	16	16	17	16	16	16	16
44	16	16	16	16	15	16	16	15	16	16	16	15	16	16	16

806

VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   IR1 GAIN3   L

SAMP / LINE	250		252		254		256		258		260		262		264
15	4	3	4	4	4	4	4	3	5	4	4	4	4	4	4
16	4	3	4	4	4	4	4	4	4	4	4	4	4	3	4
17	4	4	4	4	4	3	3	4	4	4	4	4	4	3	4
18	4	4	4	3	4	4	4	4	4	4	3	4	4	4	4
19	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
20	3	4	4	4	3	3	4	4	4	3	4	4	3	4	4
21	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
22	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
23	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
24	3	4	4	4	4	4	4	3	3	4	4	4	3	4	4
25	4	4	4	4	4	3	3	4	4	4	4	4	4	4	4
26	4	4	3	4	4	4	4	4	4	4	3	4	4	4	4
27	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
28	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
29	4	4	4	4	3	4	21	$\boxed{32}$	4	4	4	4	4	3	4
30	4	4	4	4	4	4	8	8	4	4	4	4	5	4	4
31	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
32	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
33	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4
34	4	3	4	4	4	3	3	4	4	4	4	4	4	3	4
35	4	4	3	4	4	4	3	4	4	4	4	4	4	3	4
36	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4
37	4	4	4	4	3	3	4	4	4	4	4	4	3	4	4
38	4	4	4	4	3	4	4	4	4	4	4	4	4	4	4
39	4	3	3	4	4	3	4	4	4	4	4	4	4	4	4
40	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
41	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
42	4	3	4	4	4	4	4	4	5	3	4	4	4	4	4
43	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4
44	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4

807

DARK CURRENT SUETRACTCR ON

IR1 GAIN1

LINE \ SAMP	250		252		254		256		258		260		262		264
15	15	14	15	15	16	15	16	15	15	16	16	14	14	15	16
16	15	15	14	16	15	14	18	15	15	14	15	16	15	16	15
17	15	15	15	17	15	14	16	16	14	16	15	15	16	14	15
18	15	14	15	17	15	16	15	16	15	16	15	14	13	15	15
19	17	15	15	14	14	16	16	14	16	16	15	14	15	17	16
20	15	14	14	15	15	15	17	16	15	16	14	15	15	16	17
21	15	15	16	16	15	15	14	16	15	16	16	16	14	14	16
22	16	16	14	16	16	15	15	16	16	16	15	14	15	14	15
23	15	15	14	15	15	17	15	15	17	15	14	14	15	16	16
24	15	15	15	15	15	16	15	15	15	16	15	16	15	13	17
25	15	15	15	15	14	15	16	14	15	15	15	16	15	14	16
26	16	15	15	16	16	14	16	15	15	15	15	16	16	14	15
27	15	15	14	14	15	15	15	15	16	16	14	16	14	15	14
28	15	16	15	16	16	15	17	17	16	16	16	14	16	14	16
29	14	14	15	15	13	17	62	62	17	15	16	16	15	16	17
30	16	15	16	16	16	16	34	31	16	15	15	16	15	15	15
31	16	14	14	16	15	15	15	15	16	15	14	15	15	16	15
32	16	16	15	15	16	16	15	15	16	16	16	15	16	15	15
33	16	17	15	16	13	16	14	14	15	15	14	15	15	15	15
34	15	15	15	15	15	15	15	16	17	15	15	16	14	15	14
35	16	16	15	17	16	14	15	17	14	15	15	15	16	15	15
36	16	15	16	16	16	15	14	14	16	16	15	14	15	14	15
37	16	15	16	16	15	16	16	14	16	16	15	15	15	16	16
38	14	15	17	15	15	17	16	14	14	15	17	16	14	15	15
39	15	14	15	17	14	14	16	16	15	14	15	17	15	15	15
40	16	14	14	16	17	16	16	14	15	15	15	15	15	16	15
41	16	16	16	16	15	15	15	13	16	15	15	16	14	14	16
42	16	15	16	15	15	14	17	16	15	15	17	16	14	15	16
43	15	15	15	16	15	15	15	15	16	15	16	16	14	14	15
44	16	14	15	17	16	15	15	14	15	16	14	15	15	16	16

808

VIKING LANCER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUETRACTCR CN IR2 GAINS L

SAMP / LINE	250		252		254		256		258		260		262		264
15	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
16	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4
17	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
18	4	4	4	4	4	4	3	4	4	4	4	4	4	4	4
19	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
20	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
21	4	3	3	4	4	3	4	4	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4	4	4	3	4	4	4	4	4
23	4	3	4	5	4	4	4	4	4	4	4	4	4	4	4
24	4	4	4	4	4	4	4	4	4	4	4	4	3	4	4
25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26	4	4	4	4	4	3	4	4	4	4	4	4	4	4	4
27	4	3	4	4	4	4	4	4	4	4	4	3	4	4	4
28	4	4	4	4	4	4	5	4	4	4	3	4	4	4	4
29	3	4	4	4	4	4	$\boxed{32}$	28	4	4	4	4	4	4	4
30	4	4	4	4	4	4	6	6	4	4	4	4	4	4	4
31	4	4	4	4	4	4	4	4	4	4	4	4	4	3	4
32	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
33	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
34	4	4	4	4	4	3	4	4	4	4	4	4	3	4	4
35	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
36	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4
37	4	4	3	4	4	4	4	4	4	4	4	4	3	4	4
38	3	4	4	4	3	4	4	4	4	4	4	4	4	4	4
39	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
40	4	4	4	4	4	4	4	3	4	4	4	4	4	4	4
41	4	4	4	3	4	4	4	4	4	4	4	4	4	4	4
42	3	4	4	4	4	4	4	4	4	3	4	4	4	4	4
43	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
44	4	4	4	4	4	4	3	4	4	4	4	4	4	4	3

809

VIKING LANDER *   CAMERA *   FC3A   GMT TIME **C**C**   C
DARK CURRENT SUBTRACTOR ON   IR2 GAIN1   L

SAMP	250		252		254		256		258		260		262		264
LINE															
15	17	15	15	18	15	15	17	17	15	15	16	17	17	15	16
16	14	16	16	17	17	14	15	17	16	14	14	17	16	16	15
17	16	17	16	15	17	17	16	14	17	15	15	15	16	16	16
18	17	16	16	15	18	17	17	15	16	16	15	17	16	15	16
19	15	15	17	16	15	16	17	15	16	15	15	15	14	16	18
20	16	14	17	18	17	15	17	17	16	14	16	19	18	16	17
21	17	15	16	14	16	16	16	17	18	16	15	16	16	15	16
22	17	16	16	14	16	17	16	14	[illegible]	17	16	15	14	18	17
23	16	17	15	16	15	17	17	15	15	16	15	16	15	15	17
24	16	15	17	17	17	17	16	17	15	15	15	18	16	14	16
25	15	14	15	17	15	16	17	15	18	17	13	17	17	15	17
26	18	15	14	15	16	18	16	15	16	17	15	16	15	16	16
27	15	17	16	17	16	17	17	15	15	16	17	16	14	17	17
28	17	16	16	18	16	16	20	19	15	16	16	17	15	16	18
29	17	15	14	17	15	18	62	62	18	14	14	16	16	15	17
30	18	16	16	16	17	17	27	24	18	16	16	15	17	16	17
31	16	16	15	14	16	18	19	16	16	17	16	15	15	16	16
32	16	14	16	17	14	16	17	15	17	17	16	15	16	14	17
33	17	17	16	18	17	16	18	17	17	17	16	16	15	16	16
34	17	14	14	16	16	15	16	16	16	16	15	17	15	16	15
35	17	15	15	15	16	17	16	15	17	17	15	16	15	14	15
36	16	16	16	15	15	15	18	16	16	17	15	17	15	16	15
37	16	15	16	17	16	15	16	17	15	17	15	16	16	16	17
38	17	14	15	15	14	16	18	16	17	15	17	17	16	15	17
39	17	16	15	15	17	17	18	15	16	17	16	18	16	16	14
40	16	17	17	15	14	17	16	14	16	15	16	16	13	17	17
41	16	14	16	17	15	14	18	17	15	16	17	16	15	15	17
42	17	15	16	16	16	15	16	16	17	15	14	16	16	15	18
43	17	15	15	16	15	16	16	14	16	16	15	16	16	16	15
44	17	16	16	16	15	16	16	14	18	17	16	16	16	16	17

VIKING LANDER * CAMERA * FC3A GMT TIME **C**C** C

DARK CURRENT SUBTRACTOR ON L

IR 3

SAMP	250		252		254		256		258		260		262		264
LINE															
15	4	4	4	4	4	4	4	3	4	4	4	4	4	4	5
16	3	3	4	4	4	4	4	4	5	4	4	4	4	4	4
17	3	3	4	4	4	3	4	3	3	4	3	4	4	4	4
18	4	4	3	4	4	4	3	4	4	4	4	4	4	4	4
19	4	4	3	4	4	4	4	4	4	4	4	3	4	4	4
20	4	4	3	4	4	4	4	3	4	3	4	4	3	4	4
21	3	4	4	4	3	5	4	4	3	3	4	4	3	3	4
22	4	3	4	4	4	4	4	4	3	4	3	4	3	4	4
23	4	4	3	3	3	4	4	3	4	4	4	4	4	4	3
24	4	4	4	4	3	4	4	3	4	3	3	3	4	4	3
25	3	3	4	4	3	3	3	3	4	4	3	4	4	3	4
26	3	3	4	4	3	4	3	4	4	4	4	5	4	4	4
27	4	3	4	4	4	4	3	3	4	3	4	4	4	4	5
28	4	4	3	3	3	4	5	5	4	3	4	3	4	4	3
29	4	4	3	3	3	4	$\boxed{34}$	32	4	3	4	3	4	3	4
30	3	3	4	4	3	4	6	7	4	4	4	3	4	4	4
31	4	3	4	4	4	4	4	4	4	4	3	4	4	3	4
32	4	3	3	[illegible]	4	[illegible]	3	3	4	4	4	4	4	4	4
33	4	4	4	3	4	4	4	3	4	4	3	3	4	4	4
34	3	4	4	3	4	4	4	4	4	4	4	3	4	4	4
35	4	3	4	4	4	3	4	4	4	4	4	4	3	4	4
36	4	4	3	4	3	4	4	3	4	3	3	4	3	4	4
37	3	4	4	4	3	4	3	3	4	4	4	4	4	4	3
38	3	4	4	4	3	3	4	4	4	4	4	4	3	3	4
39	3	3	3	4	4	4	4	4	3	4	4	4	3	3	4
40	4	4	4	3	3	3	3	3	4	3	4	4	4	5	4
41	4	4	3	4	3	4	3	3	4	4	4	3	4	4	4
42	3	4	4	4	3	3	4	4	4	4	4	4	3	3	4
43	4	3	3	5	4	3	4	4	4	4	3	4	3	4	4
44	4	4	3	4	4	3	3	4	4	4	4	4	3	3	4

VIKING LANDER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUBTRACTOR ON IR3 GAIN 1 L

SAMP	250		252		254		256		258		260		262		264
LINE															
15	14	14	14	16	13	14	15	15	14	14	14	17	14	14	15
16	14	14	15	14	15	13	14	15	15	15	14	16	14	16	15
17	14	14	15	15	16	15	14	15	15	14	14	14	15	15	16
18	15	15	14	14	15	14	15	15	15	15	14	14	14	16	15
19	15	15	15	15	14	15	16	14	14	14	14	15	14	15	15
20	14	13	15	15	15	13	14	15	14	14	15	14	14	15	14
21	15	14	15	14	15	15	15	15	16	15	16	15	15	16	15
22	16	16	14	14	14	16	14	14	16	15	15	15	15	15	16
23	15	15	15	15	15	14	14	15	16	15	15	14	14	15	16
24	14	13	15	15	14	15	16	16	15	15	15	15	15	15	15
25	15	15	14	14	15	16	15	15	16	15	14	16	16	14	14
26	15	15	15	14	15	15	15	14	15	14	14	15	15	15	16
27	15	15	14	15	14	15	15	15	15	14	16	15	14	16	16
28	13	15	14	15	15	15	19	19	14	16	14	16	15	15	15
29	14	13	14	15	14	16	62	62	18	14	14	16	15	14	15
30	16	14	14	13	16	16	22	25	16	15	15	15	15	15	14
31	15	15	15	16	14	16	18	15	15	13	16	14	15	15	15
32	14	14	15	16	14	15	16	14	14	14	15	15	14	13	15
33	14	14	16	16	15	15	15	15	14	16	14	16	16	15	15
34	16	15	13	15	15	16	16	14	15	16	15	15	15	15	14
35	15	15	15	15	15	14	14	15	14	15	15	14	14	14	14
36	14	15	16	16	15	13	14	14	15	15	15	15	14	14	14
37	15	13	14	15	14	14	15	14	14	15	15	14	16	14	16
38	15	15	13	15	16	15	14	14	15	16	15	15	16	14	15
39	15	16	15	14	14	14	15	15	16	15	14	14	15	15	15
40	15	14	15	15	13	14	16	14	14	15	15	15	14	15	15
41	15	14	15	15	13	15	15	14	16	15	16	16	15	14	16
42	15	15	15	16	15	13	14	15	16	15	14	15	15	15	14
43	15	14	15	14	15	14	14	13	15	15	15	15	15	14	14
44	15	15	16	15	15	14	15	15	16	16	14	14	14	15	16

812

VIKING LANCER * CAMERA * FC3A GMT TIME **C**C** C
DARK CURRENT SUETRACTCR ON SURVEY GAINS L

LINE \ SAMP	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	6	$\boxed{11}$	0	0	0	0	0	0	0
30	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

813

VIKING LANDER * CAMERA * FC3A GMT TIME **0**0** C

DARK CURRENT SUBTRACTOR ON SURVEY GAIN 3 L

LINE \ SAMP	250		252		254		256		258		260		262		264
15	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
16	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
17	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
18	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
19	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
20	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
21	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
22	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
23	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
24	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
25	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
26	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
27	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
28	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
29	4	4	4	4	4	4	24	43	4	4	4	4	4	4	4
30	4	4	4	4	4	4	6	10	4	4	4	4	4	4	4
31	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
32	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
33	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
34	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
35	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
36	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
37	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
38	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
39	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
40	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
41	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
42	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
43	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
44	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

814

Morrill

IPL CALIBRATION DATA TRANSMITTAL

VIKING LANDER CAMERA

TO: IMAGING TEAM

DATE: 2/11/75

CALIBRATION RUN COLOR RESPONSE vs. ELEVATION ANGLE, FC-3A CAMERA

The data attached and listed below is hereby transmitted to you as part of the IPL calibration data processing results.

Table I: Raw data from the color response test with contamination cover open, consisting of mean DN and σ for a 3x3 pixel area centered in the image of the MMA radiometric source with a 2 cm aperture. The source was imaged at three different elevation pointing angles for each channel.

Table II: Identical to Table I but with the contamination cover closed.

Graphs I and II: Plots of data from Table I.

Graphs III and IV: Plots of data from Table II.

Results Summary attached.

TEST DESCRIPTION The MMA radiometric source with a 2 cm aperture was imaged by the infrared visual color and SURVEY channels at three different pointing angles (0°, +10°, -30°). The swing fixture was used to offset the elevation angle.

DATA PROCESSING DESCRIPTION The mean DN and σ were computed for a 3x3 pixel area centered on the image.

ANALYST Michael E. Morrill

APPROVAL Michael R. Wolf

RESULTS SUMMARY:

Analysis of this data shows no color response vs. elevation angle effect >2.1% with the contamination cover open or 2.0% with it closed. Comparison of this data with the other flight cameras shows no correlation.

TABLE I

Color Response vs. Elevation Angle

Contamination Cover Open

Tape: VIK 258D — Files 1-21

Camera: FC-3A — Raw Data

CHAN.	ELEV.	OFFSET	GAIN	$\overline{DN}$	σ	PSA Temp °C	File
RED	0°	1	4	54.111	0.601	+26	1
BLUE	0°	1	4	40.889	0.333	+26	2
GREEN	0°	1	4	56.667	0.500	+26	3
IR1	0°	1	4	49.778	0.441	+26	4
IR2	0°	1	4	43.667	0.500	+26	5
IR3	0°	1	4	45.556	0.727	+26	6
SURVEY	0°	1	4	56.222	0.667	+28	7
RED	+10°	1	4	54.000	0.500	+28	8
BLUE	+10°	1	4	40.333	0.500	+28	9
GREEN	+10°	1	4	55.556	0.527	+28	10
IR1	+10°	1	4	49.889	0.333	+28	11
IR2	+10°	1	4	43.778	0.441	+28	12
IR3	+10°	1	4	45.667	0.500	+28	13
SURVEY	+10°	1	4	56.222	0.667	+28	14
RED	-30°	1	4	54.556	0.527	+28	15
BLUE	-30°	1	4	41.000	0.000	+28	16
GREEN	-30°	1	4	56.556	0.527	+28	17
IR1	-30°	1	4	49.222	0.667	+30	18
IR2	-30°	1	4	43.000	0.500	+30	19
IR3	-30°	1	4	45.222	0.667	+30	20
SURVEY	-30°	1	4	56.444	0.527	+30	21

TABLE II

Color Response vs. Elevation Angle

Contamination Cover Closed

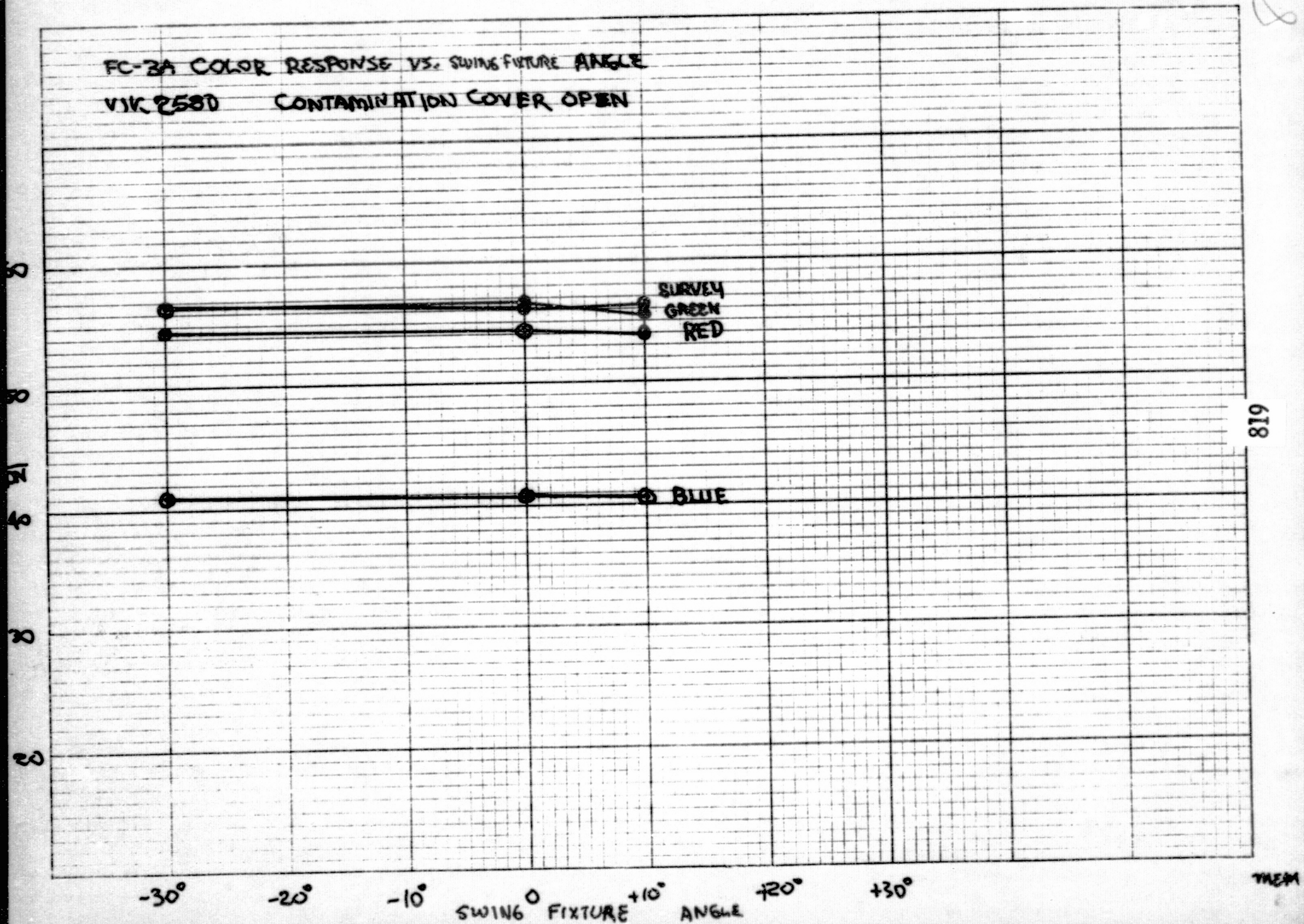
Tape: VIK 258D — Files 22-42

Camera: FC-3A — Raw Data

CHAN.	ELEV.	OFFSET	GAIN	$\overline{DN}$	σ	PSA Temp °C	File
RED	0°	1	4	50.889	0.333	+30	22
BLUE	0°	1	4	38.778	0.441	+30	23
GREEN	0°	1	4	52.333	0.500	+30	24
IR1	0°	1	4	46.667	0.500	+30	25
IR2	0°	1	4	40.889	0.333	+30	26
IR3	0°	1	4	42.889	0.333	+30	27
SURVEY	0°	1	4	52.889	0.333	+30	28
RED	+10°	1	4	50.667	0.500	+30	29
BLUE	+10°	1	4	38.333	0.500	+30	30
GREEN	+10°	1	4	52.222	0.441	+30	31
IR1	+10°	1	4	46.667	0.500	+30	32
IR2	+10°	1	4	41.000	0.000	+30	33
IR3	+10°	1	4	42.889	0.333	+30	34
SURVEY	+10°	1	4	52.778	0.410	+30	35
RED	-30°	1	4	51.556	0.527	+31	36
BLUE	-30°	1	4	38.889	0.333	+31	37
GREEN	-30°	1	4	53.333	0.500	+31	38
IR1	-30°	1	4	46.222	0.441	+31	39
IR2	-30°	1	4	40.667	0.500	+31	40
IR3	-30°	1	4	42.444	0.527	+31	41
SURVEY	-30°	1	4	52.889	0.601	+31	42

10 X 10 TO THE INCH 46 0702
KEUFFEL & ESSER CO.

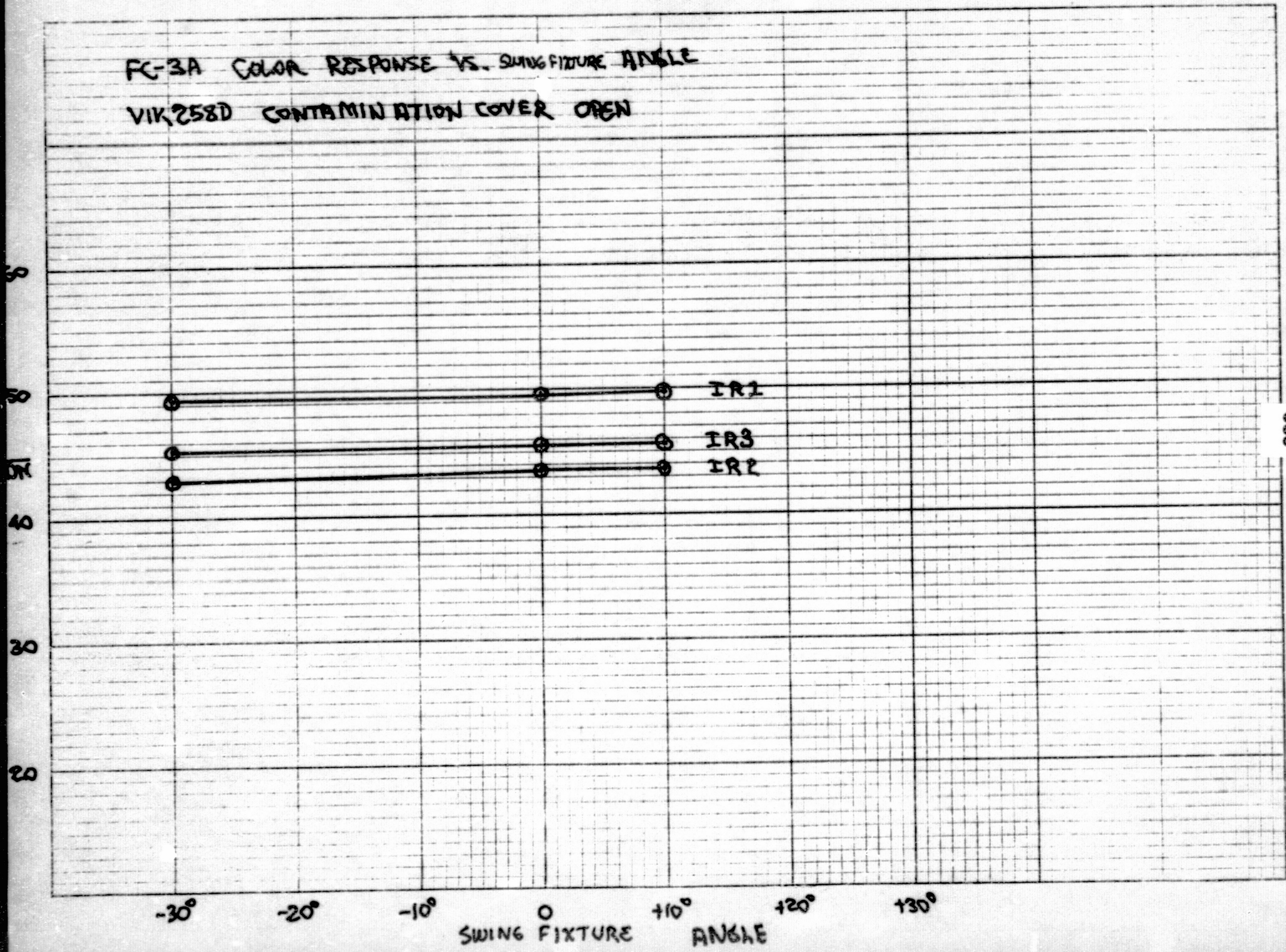
819



819

10 X 10 TO THE INCH 46 0702
KEUFFEL & ESSER CO.

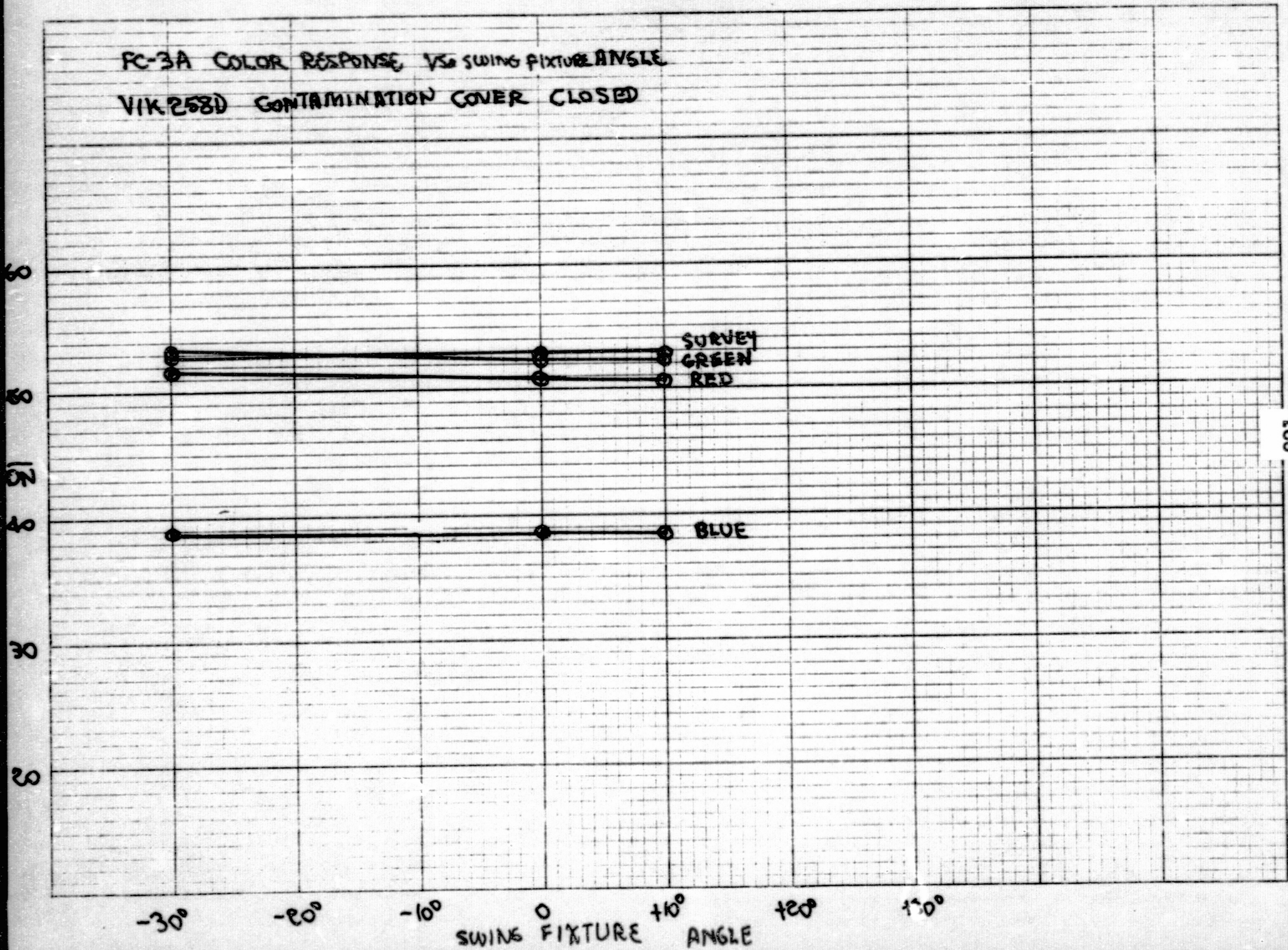
828



820

MEN

K+E 10 X 10 TO THE INCH 46 0702
KEUFFEL & ESSER CO.

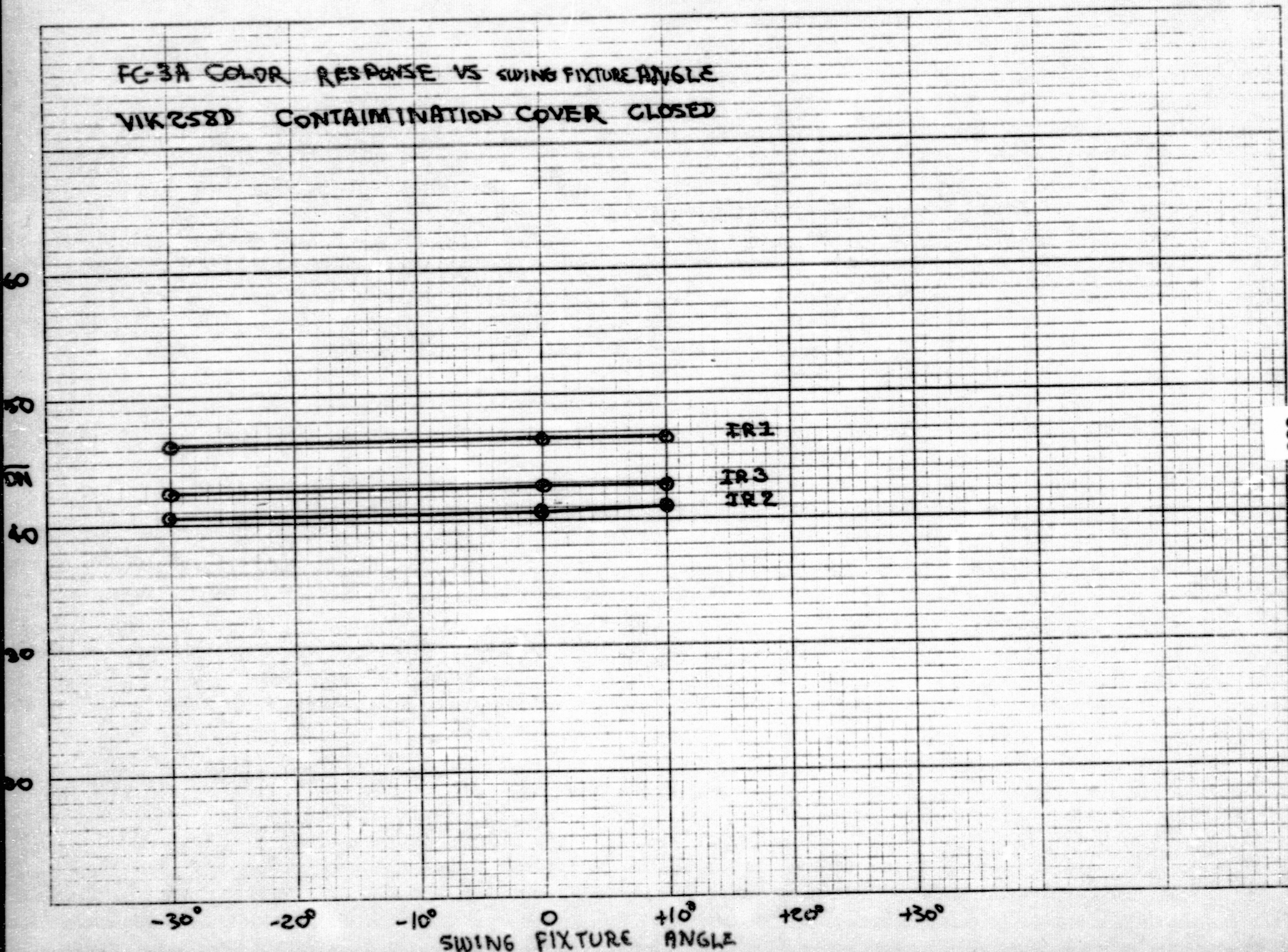


821

MEJ

10 X 10 TO THE INCH 46 0702
KEUFFEL & ESSER CO.

822



IV

SOLAR IRRADIANCE FUNCTION

SOLAR IRRADIANCE AT 1.0 AU

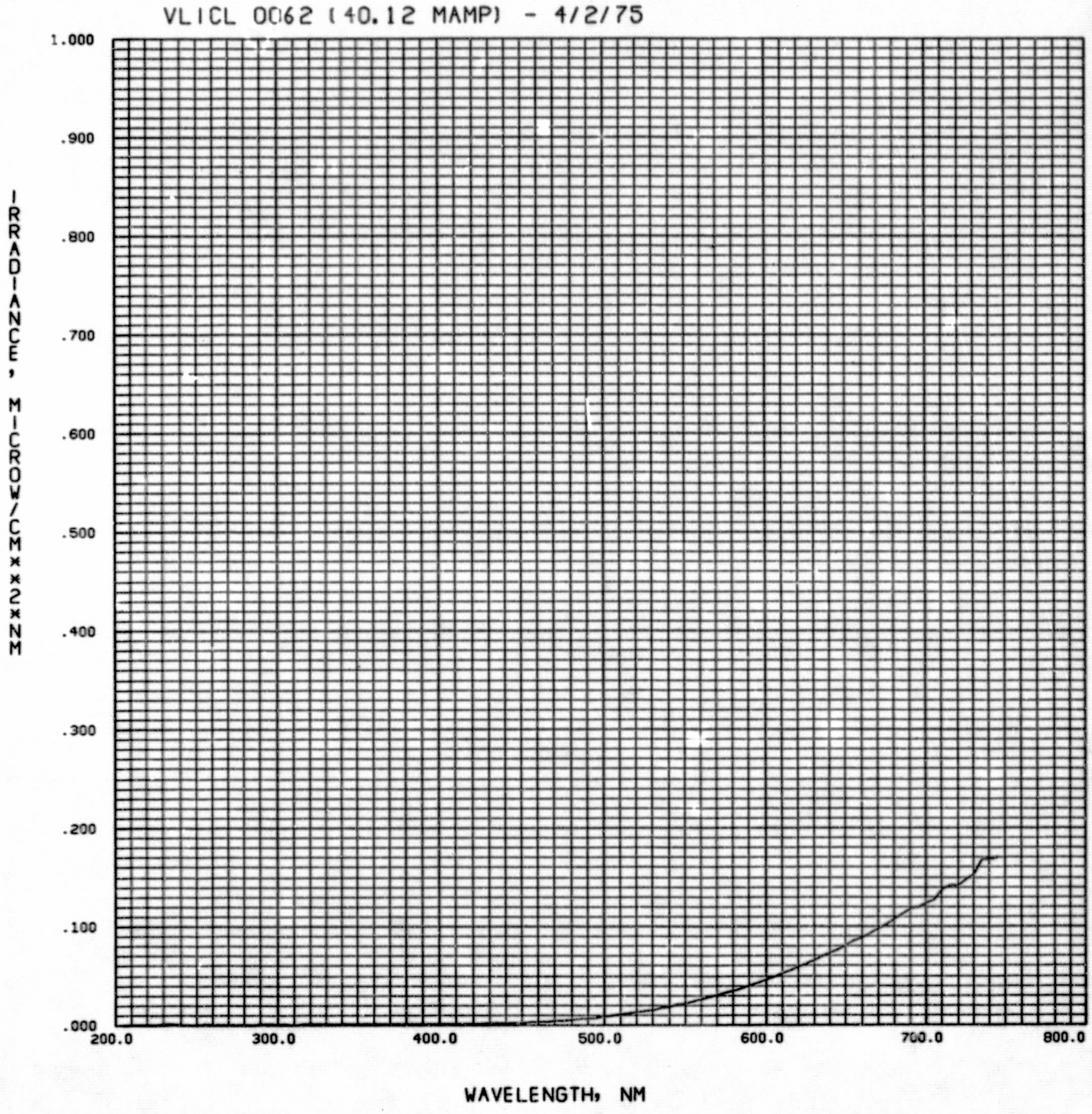
WAVELENGTH (nm)	IRRADIANCE ($\mu W\text{-}cm^{-2}\text{-}nm^{-1}$)
0.34	114
0.36	115
0.37	127
0.38	121
0.39	115
0.40	160
0.41	187
0.42	189
0.43	183
0.44	201
0.45	213
0.46	215
0.48	213
0.50	204
0.55	198
0.60	187
0.65	167
0.70	149
0.75	129
0.80	114
0.90	90
1.00	74
1.10	61
1.20	50

V

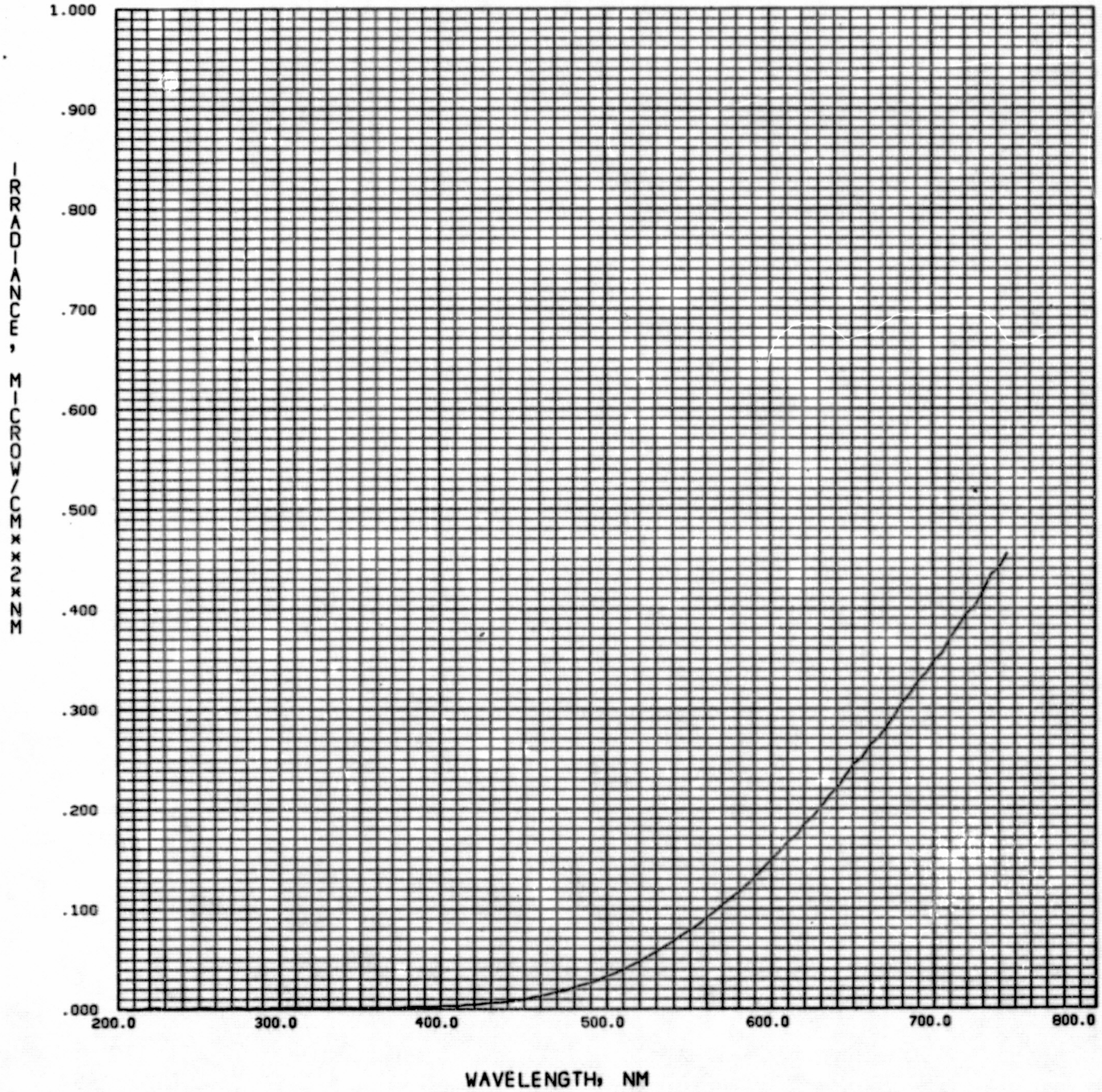
INTERNAL CAL LAMP SPECTROPHOTOMETER CURVES

825

INTERNAL CAL LAMP S/N#62



VLICL 0062 (45.16 MAMP) - 4/2/75



827

X	Y
205.3	.0000
210.3	.0000
215.2	.0000
220.2	.0000
225.3	.0000
230.3	.0000
235.3	.0000
240.3	.0000
245.3	.0000
250.3	.0000
255.3	.0000
260.3	.0000
265.3	.0000
270.3	.0000
275.3	.0000
280.3	.0000
285.3	.0000
290.3	.0000
295.3	.0000
300.3	.0000
305.3	.0000
310.3	.0000
315.3	.0000
320.4	.0000
325.4	.0000
330.3	.0000
335.3	.0000
340.3	.0000
345.3	.0000
350.4	.0000
355.3	.0001
360.4	.0001
365.4	.0001
370.4	.0001
375.3	.0001
380.3	.0002
385.4	.0002
390.4	.0003
395.4	.0003
400.4	.0004
405.4	.0005
410.4	.0006
415.4	.0007
420.4	.0008
425.4	.0010
430.4	.0011
435.4	.0014
440.4	.0016
445.4	.0018
450.4	.0021
455.4	.0024
460.4	.0028
465.4	.0033
470.4	.0038
475.4	.0043

Y

μW/cm² nm

1 μ

VLICL (40.12 mamp)

4-2-75

480.4	.0050	
485.4	.0056	
490.4	.0064	
495.4	.0072	
500.4	.0080	
505.4	.0090	
510.4	.0101	
515.4	.0112	0
520.5	.0126	0
525.5	.0138	0
530.5	.0154	0
535.4	.0167	0
540.4	.0185	0
545.4	.0200	0
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555.4	.0237	0
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570.5	.0301	0
575.5	.0323	0
580.4	.0347	0
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590.4	.0396	0
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615.5	.0552	0
620.5	.0586	0
625.5	.0624	0
630.5	.0654	0
635.5	.0698	0
640.5	.0731	0
645.6	.0768	0
650.5	.0812	0
655.6	.0847	0
660.6	.0883	0
665.6	.0930	0
670.6	.0975	0
675.6	.1012	0
680.6	.1067	0
685.6	.1121	0
690.6	.1176	0
695.5	.1193	0
700.6	.1241	0
705.5	.1270	0
710.6	.1378	0
715.6	.1411	0
720.6	.1410	0
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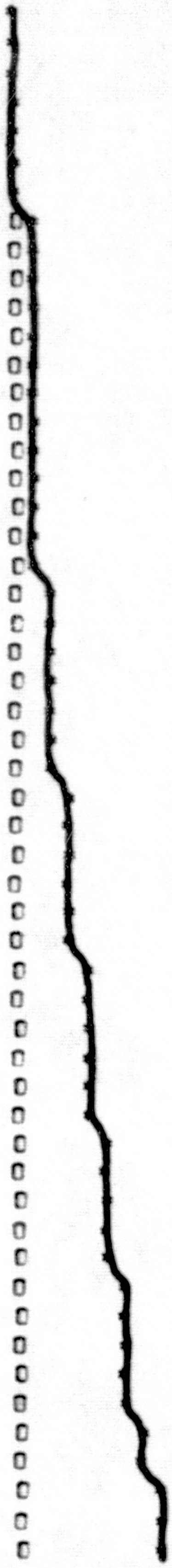

X	Y
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220.2	.0000
225.3	.0000
230.3	.0000
235.3	.0000
240.3	.0000
245.3	.0000
250.3	.0000
255.3	.0000
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270.3	.0000
275.3	.0000
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310.3	.0000
315.3	.0001
320.4	.0001
325.4	.0001
330.3	.0001
335.3	.0001
340.3	.0002
345.3	.0002
350.3	.0003
355.4	.0004
360.4	.0005
365.4	.0006
370.4	.0007
375.4	.0009
380.4	.0011
385.4	.0013
390.4	.0016
395.4	.0019
400.4	.0023
405.4	.0027
410.4	.0031
415.4	.0036
420.4	.0043
425.4	.0049
430.4	.0057
435.4	.0066
440.4	.0076
445.4	.0086
450.4	.0099
455.3	.0113
460.4	.0128
465.4	.0145
470.4	.0165
475.4	.0185

Y

1µ

VLICL (45.16 mamp)

4-2-75

480.4	.0209	0
485.4	.0236	0
490.4	.0262	0
495.4	.0292	0
500.4	.0323	0
505.4	.0358	0
510.4	.0395	0
515.4	.0438	0
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530.5	.0575	0
535.4	.0621	0
540.4	.0672	0
545.4	.0729	0
550.4	.0781	0
555.4	.0839	0
560.4	.0903	0
565.5	.0968	0
570.5	.1043	0
575.4	.1103	0
580.4	.1176	0
585.5	.1241	0
590.5	.1320	0
595.5	.1407	0
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605.5	.1571	0
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615.5	.1734	0
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675.6	.2927	0
680.6	.3053	0
685.6	.3147	0
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695.6	.3347	0
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715.6	.3806	0
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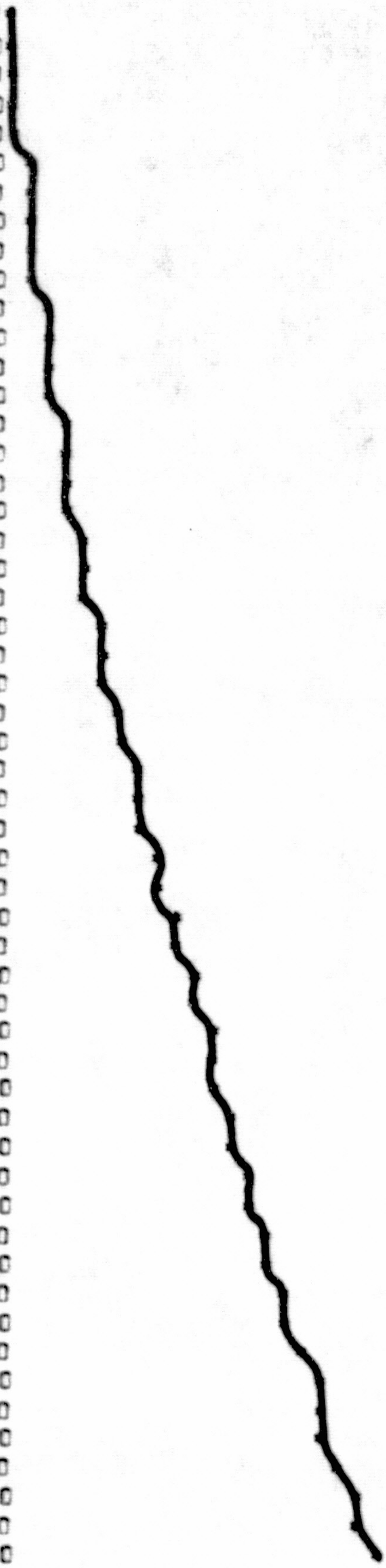
740.5	.4390	0
745.6	.4546	0



VI

COMPLETE CALIBRATION FILE LISTINGS

832

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2A

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1023.657	11	1029.417	19	1048.837	46
BLUE	120.080	11	122.150	19	129.140	46
GREEN	114.170	11	116.140	19	122.770	46
RED	293.100	11	298.490	19	316.700	46
SUN	10000.001	11	10000.000	19	10000.001	46
BB-4	991.958	11	1000.977	19	1031.427	46
BB-1	1029.397	11	1037.457	19	1064.667	46
IR-3	180.268	11	175.260	19	157.130	46
IR-2	113.060	11	111.070	19	104.340	46
IR-1	175.220	11	175.810	19	177.800	46
BB-3	1027.377	11	1033.267	19	1053.147	46
SURVEY	973.138	11	973.589	19	974.929	46

833

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1092.248	11	1098.395	19	1119.117	46
BLUE	127.098	11	129.289	19	136.687	46
GREEN	121.060	11	123.149	19	130.179	46
RED	311.809	11	317.543	19	336.916	46
SUN	10000.001	11	10000.000	19	10000.001	46
BB-4	1058.487	11	1068.112	19	1100.604	46
BB-1	1098.355	11	1106.955	19	1135.987	46
IR-3	193.459	11	188.084	19	168.627	46
IR-2	121.390	11	119.254	19	112.028	46
IR-1	187.971	11	188.554	19	190.688	46
BB-3	1096.291	11	1102.576	19	1123.790	46
SURVEY	1038.694	11	1039.110	19	1040.541	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2A

CALIBRATION ARRAY=1, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	74176.767	11	73495.048	19	71194.017	46
BLUE	17770.955	11	17778.649	19	17864.921	46
GREEN	12312.700	11	12355.128	19	12458.368	46
RED	18391.375	11	18394.337	19	18360.568	46
SUN	.8721E+11	11	.8717E+11	19	.8706E+11	46
BB-4	72495.812	11	72019.579	19	70412.036	46
BB-1	73420.517	11	72906.345	19	71170.892	46
IR-3	10337.250	11	10375.607	19	10505.108	46
IR-2	6152.095	11	6151.528	19	6149.614	46
IR-1	9356.953	11	9342.099	19	9291.950	46
BB-3	71394.517	11	71544.657	19	70363.517	46
SURVEY	68160.250	11	67631.954	19	65849.060	46

CALIBRATION ARRAY=1, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	55998.398	11	55431.398	19	53517.798	46
BLUE	19691.547	11	18747.001	19	19102.887	46
GREEN	12250.673	11	12336.069	19	12624.251	46
RED	17676.168	11	17672.700	19	17661.003	46
SUN	.8392E+11	11	.8380E+11	19	.8374E+11	46
BB-4	55168.172	11	54687.517	19	53065.287	46
BB-1	56051.536	11	55461.119	19	53468.423	46
IR-3	9113.543	11	9229.419	19	9620.513	46
IR-2	5705.996	11	5723.910	19	5806.579	46
IR-1	9297.312	11	9285.429	19	9245.377	46
BB-3	55121.817	11	54655.706	19	53082.599	46
SURVEY	51178.535	11	50976.306	19	50293.775	46

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VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2A

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	521.093	11	519.903	19	515.891	46
BLUE	91.790	11	92.546	19	95.099	46
GREEN	63.419	11	64.056	19	66.205	46
RED	115.276	11	115.262	19	115.215	46
SUN	.5466E+09	11	.5466E+09	19	.5463E+09	46
BB-4	510.500	11	510.682	19	511.290	46
BB-1	514.977	11	514.045	19	515.270	46
IR-3	108.626	11	110.850	19	118.357	46
IR-2	67.325	11	67.738	19	65.133	46
IR-1	96.124	11	96.112	19	96.071	46
BB-3	506.569	11	507.616	19	511.150	46
SURVEY	490.559	11	490.011	19	488.163	46

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	427.432	11	426.527	19	423.475	46
BLUE	99.704	11	101.950	19	109.529	46
GREEN	64.500	11	65.786	19	70.125	46
RED	112.040	11	112.056	19	112.108	46
SUN	.5312E+09	11	.5313E+09	19	.5316E+09	46
BB-4	421.971	11	421.643	19	420.534	46
BB-1	427.164	11	426.137	19	422.673	46
IR-3	102.906	11	105.700	19	115.128	46
IR-2	65.185	11	65.737	19	67.601	46
IR-1	95.931	11	96.020	19	96.153	46
BB-3	421.750	11	421.517	19	420.729	46
SURVEY	400.971	11	402.525	19	407.769	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2A

CALIBRATION ARRAY=G

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	336.7601	11	436.3102	19	405.0189	38
1	217.6062	11	221.3740	19	221.3835	38
2	110.6860	11	109.3842	18	110.8795	37
3	55.7735	11	55.3308	18	55.4925	36
4	27.3275	11	27.4922	17	27.6373	36
5	13.7211	10	13.7157	17	13.7157	36

CALIBRATION ARRAY=F

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	0.2091	11	0.2091	19	0.2091	49
1	0.0650	11	0.0650	19	0.0650	49
2	-0.0792	11	-0.0792	19	-0.0792	49
3	-0.2233	11	-0.2233	19	-0.2233	49
4	-0.3675	11	-0.3675	19	-0.3675	49
5	-0.5117	11	-0.5117	19	-0.5117	49
6	-0.6558	11	-0.6558	19	-0.6558	49
7	-0.8000	11	-0.8000	19	-0.8000	49
8	-0.9442	11	-0.9442	19	-0.9442	49
9	-1.0883	11	-1.0883	19	-1.0883	49
10	-1.2325	11	-1.2325	19	-1.2325	49
11	-1.3767	11	-1.3767	19	-1.3767	49
12	-1.5208	11	-1.5208	19	-1.5208	49
13	-1.6650	11	-1.6650	19	-1.6650	49
14	-1.8091	11	-1.8091	19	-1.8091	49
15	-1.9533	11	-1.9533	19	-1.9533	49
16	-2.0975	11	-2.0975	19	-2.0975	49
17	-2.2416	11	-2.2417	19	-2.2416	49
18	-2.3942	11	-2.3942	19	-2.3942	49
19	-2.5300	11	-2.5300	19	-2.5300	49
20	-2.6816	11	-2.6916	19	-2.6816	49
21	-2.8247	11	-2.8247	19	-2.8247	49
22	-2.9699	11	-2.9699	19	-2.9699	49
23	-3.1133	11	-3.1133	19	-3.1133	49
24	-3.2562	11	-3.2562	19	-3.2562	49
25	-3.4022	11	-3.4022	19	-3.4022	49
26	-3.5463	11	-3.5463	19	-3.5463	49
27	-3.6905	11	-3.6905	19	-3.6905	49
28	-3.8367	11	-3.8367	19	-3.8367	49
29	-3.9802	11	-3.9802	19	-3.9802	49
30	-4.1401	11	-4.1401	19	-4.1401	49
31	-4.2852	11	-4.2852	19	-4.2852	49

CALIBRATION ARRAY=L

DIODE	VALUE	DIODE	VALUE	DIODE	VALUE
BB-2	735.3536	BLUE	471.0088	GREEN	543.7325
RED	671.7854	SUN	671.7855	BB-4	736.8779
BB-1	734.7217	IR-3	943.3509	IR-2	948.0667
IR-1	873.3811	BB-3	737.0067	SURVEY	752.8740

836

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA-FC-1B

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT-OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1145.277	11	1152.750	19	1176.089	44
BLUE	157.470	11	160.500	19	169.960	44
GREEN	127.140	11	129.220	19	135.710	44
RED	311.250	11	316.440	19	332.640	44
SUN	10000.001	11	10000.000	19	10000.001	44
BB-4	1163.607	11	1173.388	19	1203.567	44
BB-1	1130.797	11	1140.427	19	1170.537	44
IR-3	204.910	11	197.530	19	174.470	44
IR-2	113.740	11	111.600	19	104.930	44
IR-1	193.320	11	193.250	19	193.040	44
BB-3	1077.827	11	1081.688	19	1093.737	44
SURVEY	1043.698	11	1043.698	19	1043.698	44

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1222.067	11	1230.041	19	1254.945	44
BLUE	166.688	11	169.896	19	179.909	44
GREEN	134.856	11	137.063	19	143.947	44
RED	331.073	11	336.593	19	353.825	44
SUN	10000.001	11	10000.000	19	10000.001	44
BB-4	1241.590	11	1252.025	19	1284.655	44
BB-1	1206.577	11	1216.852	19	1248.981	44
IR-3	219.843	11	211.925	19	187.184	44
IR-2	122.129	11	119.831	19	112.669	44
IR-1	207.358	11	207.283	19	207.058	44
BB-3	1150.139	11	1154.257	19	1167.116	44
SURVEY	1113.980	11	1113.981	19	1113.981	44

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-1B

CALIBRATION ARRAY=1, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	73183.017	11	72325.251	19	65644.829	44
BLUE	17532.469	11	17613.888	19	17868.328	44
GREEN	12567.550	11	12602.703	19	12711.286	44
RED	13273.473	11	18284.399	19	18318.525	44
SUN	.8792E+11	11	.8797E+11	19	.8813E+11	44
BB-4	72047.250	11	71581.517	19	70126.095	44
BB-1	72517.017	11	72050.001	19	70590.767	44
IR-3	10570.555	11	10556.048	19	10510.672	44
IR-2	5952.271	11	5947.278	19	5931.673	44
IR-1	9147.375	11	9129.314	19	9072.845	44
BB-3	72381.767	11	71719.360	19	69649.329	44
SURVEY	69319.250	11	68427.954	19	67205.122	44

CALIBRATION ARRAY=1, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	54989.267	11	54425.325	19	52663.005	44
BLUE	13447.375	11	18632.720	19	19211.921	44
GREEN	12476.267	11	12556.173	19	12805.899	44
RED	17666.598	11	17674.950	19	17701.004	44
SUN	.8530E+11	11	.8504E+11	19	.8516E+11	44
BB-4	54410.855	11	54105.798	19	53152.503	44
BB-1	55409.450	11	54898.556	19	53302.024	44
IR-3	9221.348	11	9300.638	19	9548.409	44
IR-2	5526.442	11	5549.318	19	5616.681	44
IR-1	8935.281	11	8921.735	19	8875.409	44
BB-3	54623.607	11	54216.877	19	52945.825	44
SURVEY	52116.355	11	51755.724	19	50628.768	44

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-1B

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	515.986	11	513.640	19	506.309	44
BLUE	90.762	11	91.945	19	95.642	44
GREEN	64.713	11	65.326	19	67.241	44
RED	113.930	11	114.060	19	114.467	44
SUN	.5481E+09	11	.5488E+09	19	.5507E+09	44
BB-4	509.395	11	509.420	19	505.493	44
BB-1	511.233	11	511.524	19	512.432	44
IR-3	108.481	11	110.861	19	116.737	44
IR-2	65.049	11	65.456	19	66.726	44
IR-1	93.423	11	93.397	19	93.317	44
BB-3	512.614	11	511.361	19	507.447	44
SURVEY	492.735	11	493.584	19	496.239	44

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CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	420.490	11	419.684	19	417.165	44
BLUE	99.046	11	101.815	19	110.467	44
GREEN	65.609	11	66.930	19	71.057	44
RED	111.299	11	111.430	19	111.839	44
SUN	.5355E+09	11	.5361E+09	19	.5381E+09	44
BB-4	417.336	11	418.162	19	420.825	44
BB-1	423.628	11	423.173	19	421.745	44
IR-3	102.595	11	105.132	19	113.059	44
IR-2	63.348	11	63.610	19	65.368	44
IR-1	91.750	11	91.773	19	91.843	44
BB-3	419.780	11	419.976	19	420.586	44
SURVEY	405.206	11	405.963	19	407.915	44

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-1B

CALIBRATION ARRAY=G

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	419.7735	10	433.3317	17	452.8699	36
1	224.3495	10	228.4002	17	224.7763	36
2	110.6757	10	112.6200	17	111.9115	36
3	55.5079	10	55.6476	17	55.5779	36
4	27.3565	10	27.4967	16	27.3883	36
5	13.7342	9	13.7249	16	13.7508	35

CALIBRATION ARRAY=F

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	0.2084	11	0.2084	19	0.2084	46
1	0.0647	11	0.0647	19	0.0647	46
2	-0.0802	11	-0.0802	19	-0.0802	46
3	-0.2225	11	-0.2225	19	-0.2225	46
4	-0.3682	11	-0.3682	19	-0.3682	46
5	-0.5120	11	-0.5120	19	-0.5120	46
6	-0.6533	11	-0.6533	19	-0.6533	46
7	-0.7970	11	-0.7970	19	-0.7970	46
8	-0.9274	11	-0.9274	19	-0.9274	46
9	-1.0712	11	-1.0712	19	-1.0712	46
10	-1.2158	11	-1.2158	19	-1.2158	46
11	-1.3627	11	-1.3627	19	-1.3627	46
12	-1.5138	11	-1.5138	19	-1.5138	46
13	-1.6486	11	-1.6486	19	-1.6486	46
14	-1.7889	11	-1.7889	19	-1.7889	46
15	-1.9360	11	-1.9360	19	-1.9360	46
16	-2.0771	11	-2.0771	19	-2.0771	46
17	-2.2151	11	-2.2151	19	-2.2151	46
18	-2.3614	11	-2.3614	19	-2.3614	46
19	-2.5071	11	-2.5071	19	-2.5071	46
20	-2.6580	11	-2.6580	19	-2.6580	49
21	-2.8012	11	-2.8012	19	-2.8012	49
22	-2.9404	11	-2.9404	19	-2.9404	49
23	-3.0838	11	-3.0838	19	-3.0838	49
24	-3.2365	11	-3.2365	19	-3.2365	49
25	-3.3796	11	-3.3796	19	-3.3796	49
26	-3.5239	11	-3.5239	19	-3.5239	49
27	-3.6673	11	-3.6673	19	-3.6673	49
28	-3.8239	11	-3.8239	19	-3.8239	49
29	-3.9553	11	-3.9553	19	-3.9553	49
30	-4.0992	11	-4.0992	19	-4.0992	49
31	-4.2432	11	-4.2432	19	-4.2432	49

CALIBRATION ARRAY=L

DIODE	VALUE	DIODE	VALUE	DIODE	VALUE
BB-2	737.1710	BLUE	468.9697	GREEN	544.4695
RED	669.8906	SUN	669.8907	BB-4	737.2158
BB-1	736.4034	IR-3	938.2266	IR-2	946.6085
IR-1	870.6011	BB-3	738.5704	SURVEY	750.6304

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAM=3A=FC-1A

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	959.909	11	967.949	19	995.078	46
BLUE	110.660	11	112.370	19	118.130	46
GREEN	101.480	11	103.160	19	108.820	46
RED	279.660	11	284.169	19	295.369	46
SUN	10000.001	11	10000.000	19	10000.001	46
BB-4	887.408	11	894.358	19	917.819	46
BB-1	895.878	11	908.349	19	950.449	46
IR-3	170.690	11	166.860	19	153.940	46
IR-2	104.720	11	103.640	19	100.000	46
IR-1	161.910	11	162.280	19	163.550	46
BB-3	875.169	11	882.219	19	906.009	46
SURVEY	864.489	11	864.479	19	864.459	46

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1024.222	11	1032.800	19	1061.747	46
BLUE	117.117	11	118.927	19	125.023	46
GREEN	107.602	11	109.384	19	115.385	46
RED	297.448	11	302.245	19	318.411	46
SUN	10000.001	11	10000.000	19	10000.001	46
BB-4	946.848	11	954.264	19	975.295	46
BB-1	956.902	11	969.310	19	1014.235	46
IR-3	183.154	11	179.044	19	165.181	46
IR-2	112.431	11	111.272	19	107.364	46
IR-1	173.658	11	174.054	19	175.416	46
BB-3	933.804	11	941.325	19	966.710	46
SURVEY	922.744	11	922.733	19	922.713	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-3A

CALIBRATION ARRAY=1, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	72879.267	11	72797.204	19	72520.329	46
BLUE	18284.504	11	18281.798	19	18272.671	46
GREEN	12137.389	11	12177.400	19	12312.423	46
RED	17698.504	11	17705.454	19	17762.701	46
SUN	.8725E+11	11	.8734E+11	19	.8762E+11	46
BB-4	73922.000	11	73490.829	19	72373.302	46
BB-1	71260.267	11	71330.704	19	71568.392	46
IR-3	10484.500	11	10543.220	19	10741.399	46
IR-2	6408.493	11	6381.576	19	6290.716	46
IR-1	9035.543	11	9030.532	19	9013.627	46
BB-3	73428.892	11	73234.993	19	72580.329	46
SURVEY	70571.625	11	70401.329	19	68476.333	46

CALIBRATION ARRAY=1, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	55183.899	11	54783.410	19	53431.751	46
BLUE	19162.035	11	19242.536	19	19514.201	46
GREEN	12058.868	11	12140.503	19	12415.554	46
RED	17130.574	11	17132.923	19	17140.502	46
SUN	.8450E+11	11	.8451E+11	19	.8455E+11	46
BB-4	55619.418	11	55154.673	19	53586.202	46
BB-1	53253.267	11	53921.501	19	52239.298	46
IR-3	9179.719	11	9312.939	19	9762.515	46
IR-2	5914.364	11	5908.568	19	5888.593	46
IR-1	8777.391	11	8772.220	19	8754.700	46
BB-3	55197.255	11	54733.618	19	53168.857	46
SURVEY	51416.086	11	51137.357	19	50196.626	46

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VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-1A

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	512.297	11	515.151	19	524.817	46
BLUE	94.955	11	95.515	19	97.403	46
GREEN	62.448	11	63.047	19	65.070	46
RED	110.157	11	110.297	19	110.736	46
SUN	.5434E+09	11	.5441E+09	19	.5462E+09	46
BB-4	519.600	11	519.759	19	523.666	46
BB-1	505.705	11	509.240	19	521.168	46
IR-3	109.908	11	112.321	19	120.465	46
IR-2	69.188	11	69.239	19	65.413	46
IR-1	92.246	11	92.262	19	92.314	46
BB-3	517.235	11	519.244	19	526.026	46
SURVEY	509.774	11	508.986	19	506.326	46

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CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	422.125	11	422.298	19	422.886	46
BLUE	102.819	11	104.680	19	110.563	46
GREEN	63.471	11	64.741	19	69.029	46
RED	107.789	11	107.944	19	108.029	46
SUN	.5317E+09	11	.5319E+09	19	.5325E+09	46
BB-4	425.259	11	425.034	19	424.280	46
BB-1	411.524	11	412.602	19	416.238	46
IR-3	103.470	11	106.451	19	116.511	46
IR-2	66.781	11	66.960	19	67.566	46
IR-1	90.040	11	90.083	19	90.228	46
BB-3	423.395	11	423.022	19	421.765	46
SURVEY	402.741	11	403.684	19	406.868	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-3A

CALIBRATION ARRAY=G

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	450.9183	11	413.3188	17	467.9092	37
1	225.2655	11	225.0350	17	224.7277	37
2	111.3537	10	111.1462	16	111.2315	37
3	55.4326	10	55.7809	16	55.7809	37
4	27.9999	10	28.0000	16	27.9999	36
5	14.0397	10	14.0397	15	14.0397	36

CALIBRATION ARRAY=F

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	0.2219	11	0.2219	19	0.2219	49
1	0.0784	11	0.0784	19	0.0784	49
2	-0.0651	11	-0.0651	19	-0.0651	49
3	-0.2101	11	-0.2101	19	-0.2101	49
4	-0.3697	11	-0.3697	19	-0.3697	49
5	-0.5132	11	-0.5132	19	-0.5132	49
6	-0.6663	11	-0.6663	19	-0.6663	49
7	-0.8179	11	-0.8179	19	-0.8179	49
8	-0.9473	11	-0.9473	19	-0.9473	49
9	-1.1047	11	-1.1047	19	-1.1047	49
10	-1.2363	11	-1.2363	19	-1.2363	49
11	-1.3797	11	-1.3797	19	-1.3797	49
12	-1.5253	11	-1.5253	19	-1.5253	49
13	-1.6818	11	-1.6818	19	-1.6818	49
14	-1.8279	11	-1.8279	19	-1.8279	49
15	-1.9713	11	-1.9713	19	-1.9713	49
16	-2.1240	11	-2.1240	19	-2.1240	49
17	-2.2750	11	-2.2750	19	-2.2750	49
18	-2.4188	11	-2.4188	19	-2.4188	49
19	-2.5622	11	-2.5622	19	-2.5622	49
20	-2.7056	11	-2.7056	19	-2.7056	49
21	-2.8490	11	-2.8490	19	-2.8490	49
22	-2.9924	11	-2.9924	19	-2.9924	49
23	-3.1358	11	-3.1358	19	-3.1358	49
24	-3.2793	11	-3.2793	19	-3.2793	49
25	-3.4227	11	-3.4227	19	-3.4227	49
26	-3.5661	11	-3.5661	19	-3.5661	49
27	-3.7095	11	-3.7095	19	-3.7095	49
28	-3.8649	11	-3.8649	19	-3.8649	49
29	-4.0130	11	-4.0130	19	-4.0130	49
30	-4.1577	11	-4.1577	19	-4.1577	49
31	-4.3011	11	-4.3011	19	-4.3011	49

CALIBRATION ARRAY=L

DIODE	VALUE	DIODE	VALUE	DIODE	VALUE
BB-2	733.3233	BLUE	468.4319	GREEN	543.0518
RED	669.0000	SUN	669.0001	BB-4	733.0635
BB-1	736.5003	IR-3	941.3386	IR-2	942.0250
IR-1	868.7927	BB-3	733.5395	SURVEY	751.5542

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VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=SPARE

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1067.047	11	1078.158	19	1115.847	46
BLUE	136.590	11	138.650	19	145.250	46
GREEN	125.730	11	127.450	19	133.260	46
RED	292.309	11	297.720	19	315.990	46
SUN	10000.001	11	10000.000	19	10000.001	46
BB-4	1032.198	11	1046.377	19	1094.217	46
BB-1	1090.957	11	1102.448	19	1141.207	46
IR-3	172.680	11	168.450	19	154.180	46
IR-2	112.310	11	111.840	19	110.270	46
IR-1	191.450	11	194.040	19	202.760	46
BB-3	1045.757	11	1062.397	19	1120.727	46
SURVEY	1001.117	11	1010.017	19	1040.037	46

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1138.461	11	1150.359	19	1190.526	46
BLUE	144.691	11	146.766	19	153.752	46
GREEN	133.344	11	135.168	19	141.330	46
RED	310.923	11	316.679	19	336.112	46
SUN	10000.001	11	10000.000	19	10000.001	46
BB-4	1101.260	11	1116.388	19	1167.429	46
BB-1	1163.992	11	1176.252	19	1217.607	46
IR-3	185.281	11	180.742	19	165.431	46
IR-2	120.583	11	120.078	19	118.392	46
IR-1	205.320	11	208.097	19	217.449	46
BB-3	1115.792	11	1134.080	19	1195.782	46
SURVEY	1068.517	11	1078.017	19	1110.057	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=SPARE

CALIBRATION ARRAY=1, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	72104.767	11	72237.798	19	72686.517	46
BLUE	17769.535	11	17826.267	19	18021.107	46
GREEN	12401.618	11	12476.420	19	12728.868	46
RED	18149.387	11	18149.317	19	18144.724	46
SUN	.8734E+11	11	.8734E+11	19	.8732E+11	46
BB-4	71550.500	11	72004.954	19	73538.810	46
BB-1	71761.579	11	72008.349	19	72841.017	46
IR-3	10014.535	11	10064.169	19	10231.649	46
IR-2	6184.735	11	6195.550	19	6232.036	46
IR-1	9368.793	11	9410.587	19	9551.639	46
BB-3	71620.829	11	72047.364	19	73486.642	46
SURVEY	68539.250	11	68896.454	19	68751.503	46

CALIBRATION ARRAY=1, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	55205.673	11	54590.901	19	54266.005	46
BLUE	18574.449	11	18734.200	19	19273.356	46
GREEN	12363.349	11	12432.525	19	12868.501	46
RED	17449.969	11	17504.087	19	17686.766	46
SUN	.8397E+11	11	.8424E+11	19	.8512E+11	46
BB-4	54056.199	11	54109.974	19	54156.504	46
BB-1	54697.251	11	54559.149	19	54093.075	46
IR-3	8372.437	11	8984.013	19	9360.563	46
IR-2	5770.478	11	5788.951	19	5851.298	46
IR-1	9112.406	11	9140.064	19	9233.407	46
BB-3	54223.669	11	54214.026	19	54181.501	46
SURVEY	50950.973	11	50998.587	19	51159.268	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=SPARE

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	508.471	11	512.368	19	525.520	46
BLUE	91.845	11	92.917	19	96.533	46
GREEN	64.155	11	65.020	19	67.939	46
RED	113.160	11	113.224	19	113.440	46
SUN	.5445E+09	11	.5449E+09	19	.5459E+09	46
BB-4	506.927	11	512.439	19	531.059	46
BB-1	507.293	11	511.926	19	527.131	46
IR-3	105.329	11	107.557	19	115.077	46
IR-2	67.331	11	67.806	19	69.410	46
IR-1	94.962	11	95.382	19	97.136	46
BB-3	509.096	11	514.500	19	532.737	46
SURVEY	497.640	11	499.965	19	507.810	46

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	421.956	11	423.250	19	427.619	46
BLUE	99.678	11	102.337	19	111.312	46
GREEN	65.335	11	66.986	19	72.560	46
RED	109.917	11	110.360	19	111.856	46
SUN	.5289E+09	11	.5311E+09	19	.5383E+09	46
BB-4	415.377	11	417.828	19	426.104	46
BB-1	419.129	11	420.837	19	426.606	46
IR-3	100.137	11	102.842	19	111.971	46
IR-2	65.530	11	66.011	19	67.636	46
IR-1	92.943	11	93.265	19	94.688	46
BB-3	417.944	11	420.295	19	428.229	46
SURVEY	399.303	11	402.312	19	412.469	46

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=SPARE

CALIBRATION ARRAY=G

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	451.4000	11	404.1847	17	450.5601	39
1	223.7300	11	220.2754	17	228.7587	38
2	111.5639	11	112.7155	17	111.4502	38
3	55.7309	11	55.7697	17	55.7857	38
4	27.3187	11	27.9999	16	27.9999	33
5	13.7186	11	13.8413	16	13.8413	38

CALIBRATION ARRAY=F

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	0.2171	11	0.2171	19	0.2171	44
1	0.0694	11	0.0694	19	0.0694	44
2	-0.0751	11	-0.0751	19	-0.0751	44
3	-0.2264	11	-0.2264	19	-0.2264	44
4	-0.3697	11	-0.3697	19	-0.3697	44
5	-0.5132	11	-0.5132	19	-0.5132	44
6	-0.6555	11	-0.6555	19	-0.6555	44
7	-0.8002	11	-0.8002	19	-0.8002	44
8	-0.9335	11	-0.9335	19	-0.9335	44
9	-1.0691	11	-1.0691	19	-1.0691	44
10	-1.2126	11	-1.2126	19	-1.2126	44
11	-1.3531	11	-1.3531	19	-1.3531	44
12	-1.5081	11	-1.5081	19	-1.5081	44
13	-1.6429	11	-1.6429	19	-1.6429	44
14	-1.7926	11	-1.7926	19	-1.7926	44
15	-1.9322	11	-1.9322	19	-1.9322	44
16	-2.0756	11	-2.0756	19	-2.0756	44
17	-2.2369	11	-2.2369	19	-2.2369	44
18	-2.3719	11	-2.3719	19	-2.3719	44
19	-2.5118	11	-2.5118	19	-2.5118	44
20	-2.6671	11	-2.6671	19	-2.6671	44
21	-2.8112	11	-2.8112	19	-2.8112	44
22	-2.9531	11	-2.9531	19	-2.9531	44
23	-3.0983	11	-3.0983	19	-3.0983	44
24	-3.2418	11	-3.2418	19	-3.2418	44
25	-3.3852	11	-3.3852	19	-3.3852	44
26	-3.5286	11	-3.5286	19	-3.5286	44
27	-3.6720	11	-3.6720	19	-3.6720	44
28	-3.8154	11	-3.8154	19	-3.8154	44
29	-3.9588	11	-3.9588	19	-3.9588	44
30	-4.1023	11	-4.1023	19	-4.1023	44
31	-4.2458	11	-4.2458	19	-4.2458	44

CALIBRATION ARRAY=L

DIODE	VALUE	DIODE	VALUE	DIODE	VALUE
BB-2	734.2469	BLUE	470.6484	GREEN	543.6956
RED	670.4053	SUN	670.4053	BB-4	733.3948
BB-1	734.5765	IR-3	943.4592	IR-2	944.5067
IR-1	866.7842	BB-3	735.5975	SURVEY	750.9592

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VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2B

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1040.300	30	1040.300	30	1040.300	30
BLUE	124.100	30	124.100	30	124.100	30
GREEN	114.500	30	114.500	30	114.500	30
RED	284.600	30	284.600	30	284.600	30
SUN	10000.001	30	10000.000	30	10000.001	30
BB-4	1047.800	30	1047.800	30	1047.800	30
BB-1	1040.300	30	1040.300	30	1040.300	30
IR-3	148.080	30	148.080	30	148.080	30
IR-2	116.280	30	116.280	30	116.280	30
IR-1	172.460	30	172.460	30	172.460	30
BB-3	1086.100	30	1086.100	30	1086.100	30
SURVEY	965.440	30	965.440	30	965.440	30

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	1040.300	30	1040.300	30	1040.300	30
BLUE	124.100	30	124.100	30	124.100	30
GREEN	114.500	30	114.500	30	114.500	30
RED	284.600	30	284.600	30	284.600	30
SUN	10000.001	30	10000.000	30	10000.001	30
BB-4	1047.800	30	1047.800	30	1047.800	30
BB-1	1040.300	30	1040.300	30	1040.300	30
IR-3	148.080	30	148.080	30	148.080	30
IR-2	116.280	30	116.280	30	116.280	30
IR-1	172.460	30	172.460	30	172.460	30
BB-3	1086.100	30	1086.100	30	1086.100	30
SURVEY	965.440	30	965.440	30	965.440	30

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2B

CALIBRATION ARRAY=1, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	68379.767	30	68379.798	30	68379.767	30
BLUE	19122.285	30	19122.286	30	19122.286	30
GREEN	12401.556	30	12401.557	30	12401.556	30
RED	18299.875	30	18299.876	30	18299.878	30
SUN	18299.876	30	18299.878	30	18299.876	30
BB-4	68002.875	30	68002.892	30	68002.931	30
BB-1	68789.892	30	68789.931	30	68789.892	30
IR-3	10353.016	30	10353.017	30	10353.016	30
IR-2	6067.970	30	6067.973	30	6067.970	30
IR-1	9440.453	30	9440.454	30	9440.455	30
BB-3	67701.079	30	67701.067	30	67701.079	30
SURVEY	66477.562	30	66477.579	30	66477.599	30

CALIBRATION ARRAY=1, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	68379.767	30	68379.798	30	68379.767	30
BLUE	19122.285	30	19122.286	30	19122.286	30
GREEN	12401.556	30	12401.557	30	12401.556	30
RED	18299.875	30	18299.876	30	18299.878	30
SUN	18299.876	30	18299.878	30	18299.876	30
BB-4	68002.875	30	68002.892	30	68002.931	30
BB-1	68789.892	30	68789.931	30	68789.892	30
IR-3	10353.016	30	10353.017	30	10353.016	30
IR-2	6067.970	30	6067.973	30	6067.970	30
IR-1	9440.453	30	9440.454	30	9440.455	30
BB-3	67701.079	30	67701.067	30	67701.079	30
SURVEY	66477.562	30	66477.579	30	66477.599	30

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VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2B

CALIBRATION ARRAY=C, CONTAMINATION COVER OUT OF OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	486.035	30	486.035	30	486.035	30
BLUE	99.270	30	99.270	30	99.270	30
GREEN	63.984	30	63.984	30	63.984	30
RED	115.103	30	115.103	30	115.103	30
SUN	115.103	30	115.103	30	115.103	30
BB-4	484.494	30	484.494	30	484.495	30
BB-1	488.161	30	488.161	30	488.161	30
IR-3	109.051	30	109.051	30	109.051	30
IR-2	66.702	30	66.702	30	66.702	30
IR-1	96.829	30	96.829	30	96.829	30
BB-3	482.642	30	482.642	30	482.642	30
SURVEY	483.914	30	483.914	30	483.914	30

CALIBRATION ARRAY=C, CONTAMINATION COVER WITHIN OPTICAL PATH

DIODE	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
BB-2	486.035	30	486.035	30	486.035	30
BLUE	99.270	30	99.270	30	99.270	30
GREEN	63.984	30	63.984	30	63.984	30
RED	115.103	30	115.103	30	115.103	30
SUN	115.103	30	115.103	30	115.103	30
BB-4	484.494	30	484.494	30	484.495	30
BB-1	488.161	30	488.161	30	488.161	30
IR-3	109.051	30	109.051	30	109.051	30
IR-2	66.702	30	66.702	30	66.702	30
IR-1	96.829	30	96.829	30	96.829	30
BB-3	482.642	30	482.642	30	482.642	30
SURVEY	483.914	30	483.914	30	483.914	30

VIKING LANDER PREFLIGHT CALIBRATION FILE LISTING

CAMERA=FC-2B

CALIBRATICN ARRAY=G

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	428.5953	12	471.0094	27	455.7152	39
1	255.2572	12	222.8364	27	222.8007	39
2	112.0242	12	110.9347	29	110.5197	41
3	55.9039	10	55.7809	29	55.7810	41
4	27.9945	10	27.4971	29	27.3580	41
5	13.7294	10	13.8009	31	13.7211	41

CALIBRATICN ARRAY=F

INDEX	VALUE1	TEMP1	VALUE2	TEMP2	VALUE3	TEMP3
0	0.2018	25	0.2018	25	0.2018	25
1	0.0586	25	0.0586	25	0.0586	25
2	-0.0838	25	-0.0838	25	-0.0838	25
3	-0.2276	25	-0.2276	25	-0.2276	25
4	-0.3707	25	-0.3707	25	-0.3707	25
5	-0.5138	25	-0.5138	25	-0.5139	25
6	-0.6569	25	-0.6569	25	-0.6569	25
7	-0.8000	25	-0.8000	25	-0.8000	25
8	-0.9431	25	-0.9431	25	-0.9431	25
9	-1.0862	25	-1.0862	25	-1.0862	25
10	-1.2293	25	-1.2293	25	-1.2293	25
11	-1.3724	25	-1.3724	25	-1.3724	25
12	-1.5155	25	-1.5155	25	-1.5155	25
13	-1.6586	25	-1.6586	25	-1.6586	25
14	-1.8017	25	-1.8017	25	-1.8017	25
15	-1.9448	25	-1.9448	25	-1.9448	25
16	-2.0879	25	-2.0879	25	-2.0879	25
17	-2.2310	25	-2.2310	25	-2.2310	25
18	-2.3747	25	-2.3747	25	-2.3747	25
19	-2.5172	25	-2.5172	25	-2.5172	25
20	-2.6603	25	-2.6603	25	-2.6603	25
21	-2.8034	25	-2.8034	25	-2.8034	25
22	-2.9465	25	-2.9465	25	-2.9465	25
23	-3.0897	25	-3.0897	25	-3.0897	25
24	-3.2420	25	-3.2420	25	-3.2420	25
25	-3.3937	25	-3.3937	25	-3.3937	25
26	-3.5368	25	-3.5368	25	-3.5368	25
27	-3.6800	25	-3.6800	25	-3.6800	25
28	-3.8237	25	-3.8237	25	-3.8237	25
29	-3.9676	25	-3.9676	25	-3.9675	25
30	-4.1133	25	-4.1133	25	-4.1133	25
31	-4.2557	25	-4.2557	25	-4.2557	25

CALIBRATICN ARRAY=L

DIODE	VALUE	DIODE	VALUE	DIODE	VALUE
BB-2	737.1702	BLUE	468.9695	GREEN	544.4651
RED	665.8896	SUN	669.8697	BB-4	737.2156
BB-1	736.4031	IR-3	938.2261	IR-2	946.6077
IR-1	870.6003	BB-3	738.5695	SURVEY	750.6296

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VII

STANDARD SOURCE CALIBRATIONS

853

Morrill

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

Ref: 824-IPL/SIPG/74-MRW:iw-369

27 August 1974

TO: Whom It May Concern

FROM: M. R. Wolf

SUBJECT: CALIBRATION OF MMA RADIOMETRIC SOURCE

Recently Phil Avrin and I made telephotometer measurements of a 100 foot-Lambert source, the Langly test fixture, and the MMA radiometric source (both lamp positions). Assuming that the relative spectral dependence of the source is well known (my examination of the spectroradiometer data indicates that this is true to about 3% or better), one can convert a photometric measurement of the source to a radiometric measurement. Details of this procedure are in the attached reference (824-IPL/SIPG/74-MRW:iw-311.) I enclose a normalized spectral dependence for the source (Graph #1). Data was reduced to values of absolute spectral radiance at 670 NM for each aperture for both bulb position I and bulb position II.

The same techniques were used to measure the RTC patches and reduce them to radiometric units. The spectral dependence used in this case was the Epply calibration for the bulb used (#1574) multiplied by Steve Wall's measurements of RTC reflectivity vs. wavelength (Graph #2). Results are given as absolute spectral radiance vs. RTC patch number.

Equipment used:

1) Langly Test Fixture (MMA One).
2) Epply Standard Lamp EPI - 1574.
3) Gamma Scientific Standard Source Model 220-1A S/N 828
   Output = 100 ± 2 Foot-Lamberts (See attached Calibration Report).
4) Gamma Model 2000 Telephotometer S/N 200.
5) Fluke Model 8100A Digital Voltmeter (for measuring lamp voltage).

Photometer field was 20' and distance to MMA source was 1.0 M. Distance to Langly test fixture was approximately 1.5 M. The photoptic curve used for the conversion calculations is shown in Table III.

Further details on experimental set-up and procedure are available on request.

Attachments

Distribution: Calibration Report Recipients

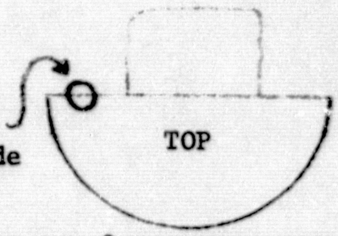
TABLE I

CALIBRATION OF MMA RADIOMETRIC SOURCE, REDUCED DATA

LAMP VOLTAGE = 23.00 VOLTS LAMP POSITION I

New bulb installed. "Burned in"
for 45 minutes before testing began.

Lamp on
this side



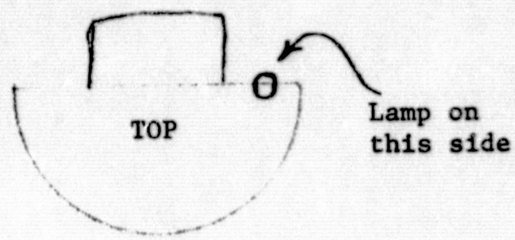
Aperture	Φ_λ (670) (Microwatts/cm^2/Steradian/NM)
G 11	1.251×10^{0}
G 9	3.03×10^{0}
G 8	5.955×10^{0}
G 7	8.711×10^{0}
G 6	1.226×10^{1}
G 5	1.892×10^{1}
G 3	3.319×10^{1}
G 2	3.746×10^{1}

Φ_λ (670) ≡ Absolute Spectral Radiance of Source at 670 NM

TABLE II

CALIBRATION OF MMA RADIOMETRIC SOURCE, REDUCED DATA

LAMP VOLTAGE = 23.00 VOLTS | LAMP POSITION II



APERTURE	Φ_{λ} (670)
G 11	1.170×10^{0}
G 9	2.800×10^{0}
G 8	5.361×10^{0}
G 7	8.244×10^{0}
G 6	1.170×10^{1}
G 5	1.811×10^{1}
G 3	3.235×10^{1}
G 2	3.702×10^{1}

Φ_{λ} (670) $\equiv$ Absolute Spectral Radiance of Source at 670 NM

TABLE III

RELATIVE VISIBILITY FUNCTION OR PHOTOPTIC CURVE (K_λ)

λ	K_λ	λ	K_λ
350	0.	580	.870
380	.00004	590	.757
390	.00012	600	.631
400	.0004	610	.503
410	.0012	620	.381
420	.004	630	.285
430	.0116	640	.175
440	.023	650	.107
450	.038	660	.061
460	.060	670	.032
470	.091	680	.017
480	.139	690	.0082
490	.208	700	.0041
500	.323	710	.0021
510	.503	720	.00105
520	.710	730	.00052
530	.862	740	.00025
540	.954	750	.00012
550	.995	760	.00006
555	1.000	770	.00003
560	.995	1150	0.
570	.952		

TABLE IV

CALIBRATION OF LANGLY TEST FIXTURE/RTC/STANDARD LAMP

$\Phi_\lambda(900) \equiv$ ABSOLUTE SPECTRAL RADIANCE OF PATCH AT 900 NM

RTC PATCH	$\Phi_\lambda(900)$ (Microwatts/cm^2/Steradian/NM)
#1	6.229×10^{0}
#2	5.080×10^{0}
#3	4.575×10^{0}
#4	4.317×10^{0}
#5	3.845×10^{0}
#6	3.415×10^{0}
#7	2.438×10^{0}
#8	2.051×10^{0}
#9	1.718×10^{0}
#10	1.203×10^{0}
#11	8.592×10^{-1}

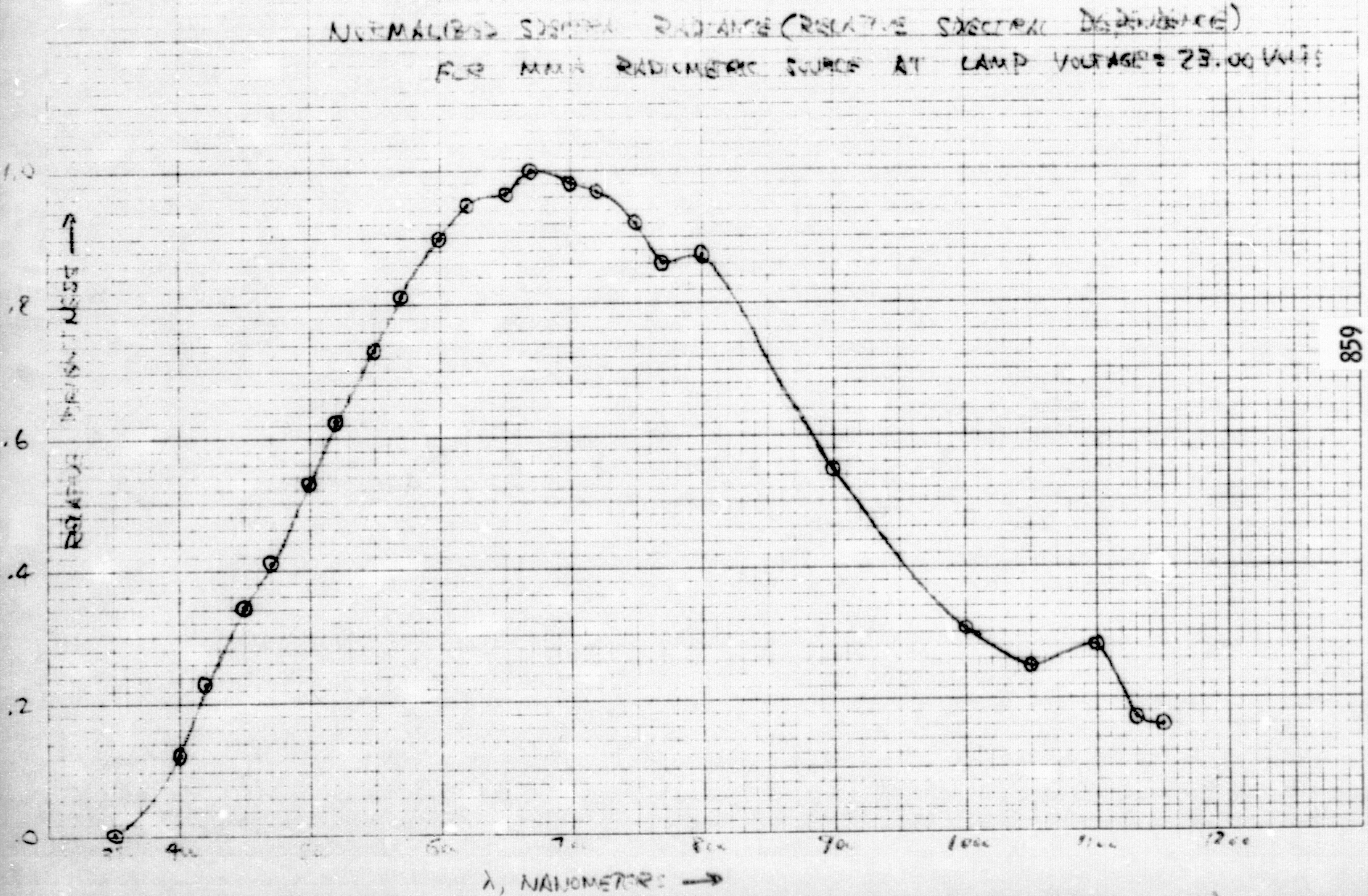
COLOR PATCH	LUMINANCE (Foot-Lamberts)
BLUE	1.00×10^{2}
GREEN	1.60×10^{2}
RED	9.6×10^{1}

NOTE: Patches were numbered in decreasing order of their nominal reflectance (see Figure I). Color patch brightness given in photometric units because no information was available as to the spectral reflectance of the color patches.

NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

EUGENE DIETZGEN CO.
MADE IN U.S.A.

GRAPH I



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NO. 340A-10 DIETZGEN GRAPH PAPER
10 X 10 PER INCH

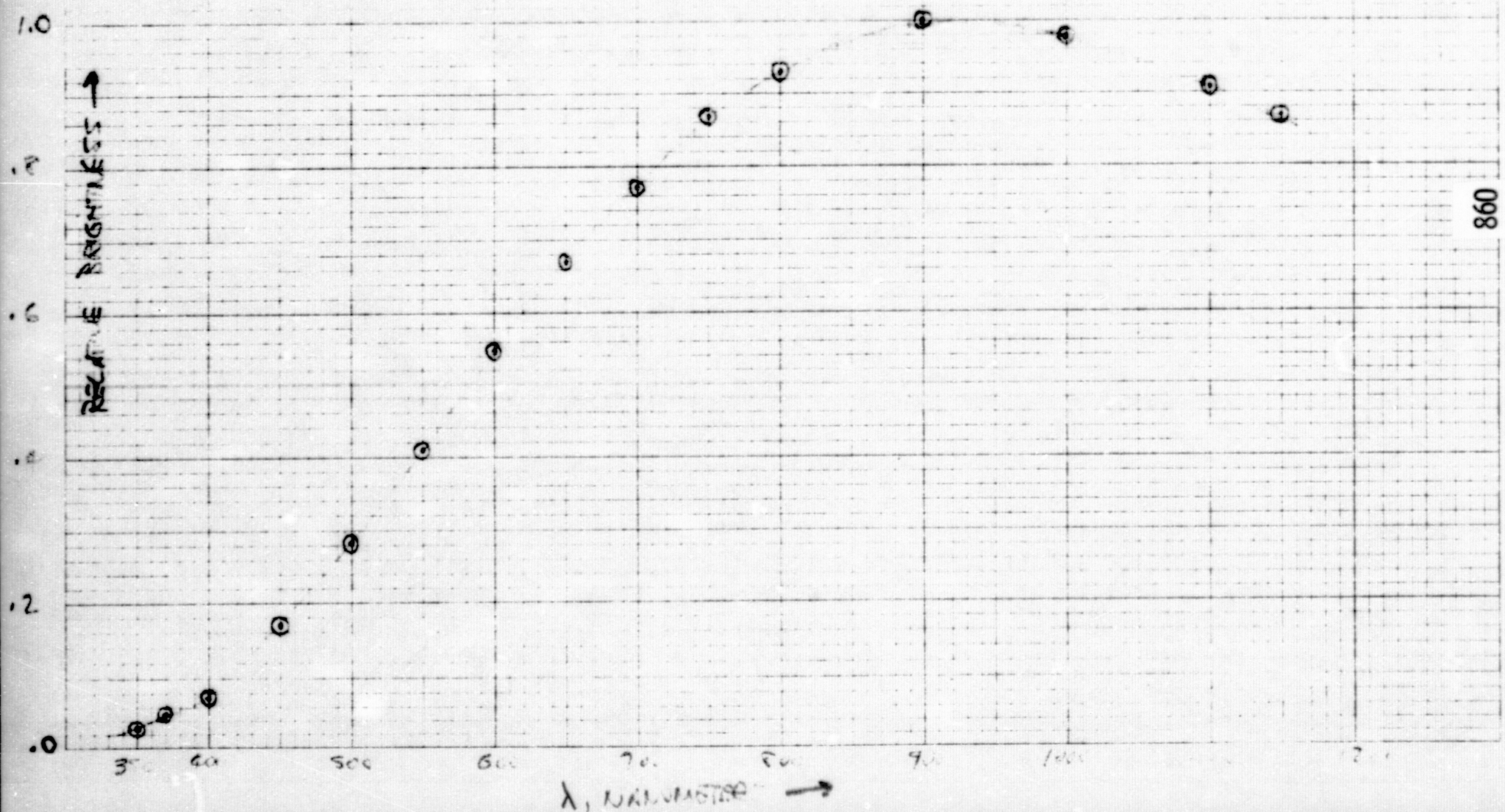
EUGENE DIETZGEN CO.
MADE IN U.S.A.

GRAPH II

NORMALIZED SPECTRAL RADIANCE (RELATIVE SPECTRAL DEPENDENCE)

FOR RTC ILLUMINATED WITH EPI-1574

AT 7.9 AMPERES



REPORT OF CALIBRATION

On this date, Gamma Scientific Model 220-4A, Serial No. 828, was calibrated and standardized in our photometric laboratory to the following specifications:

Output = 100 ± 2 F.L.

Color Temperature = 2854 ± 50°K

Luminance Uniformity (within a circle centered on the luminous surface, 3 inches in diameter)

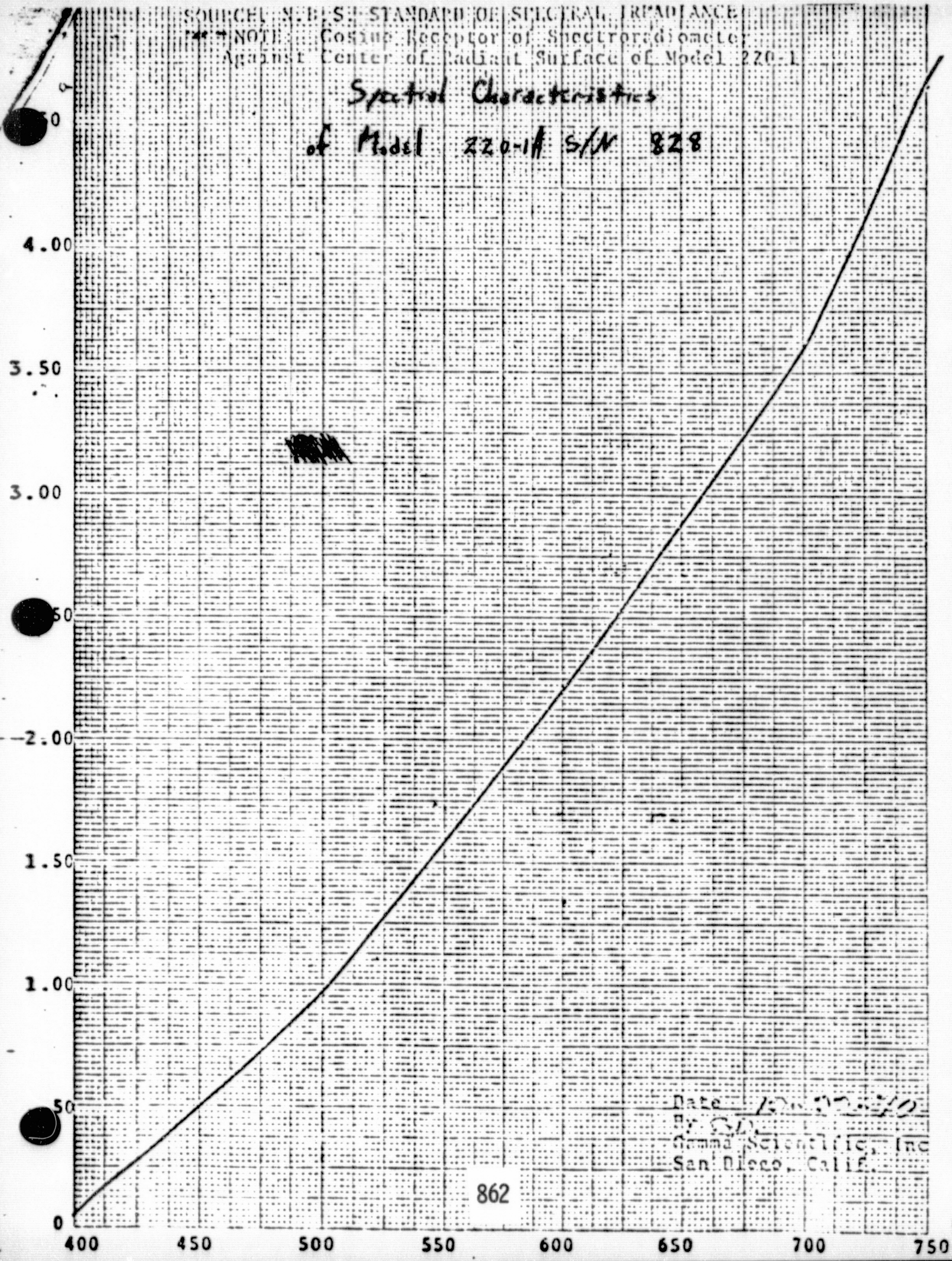
= ±1.5%

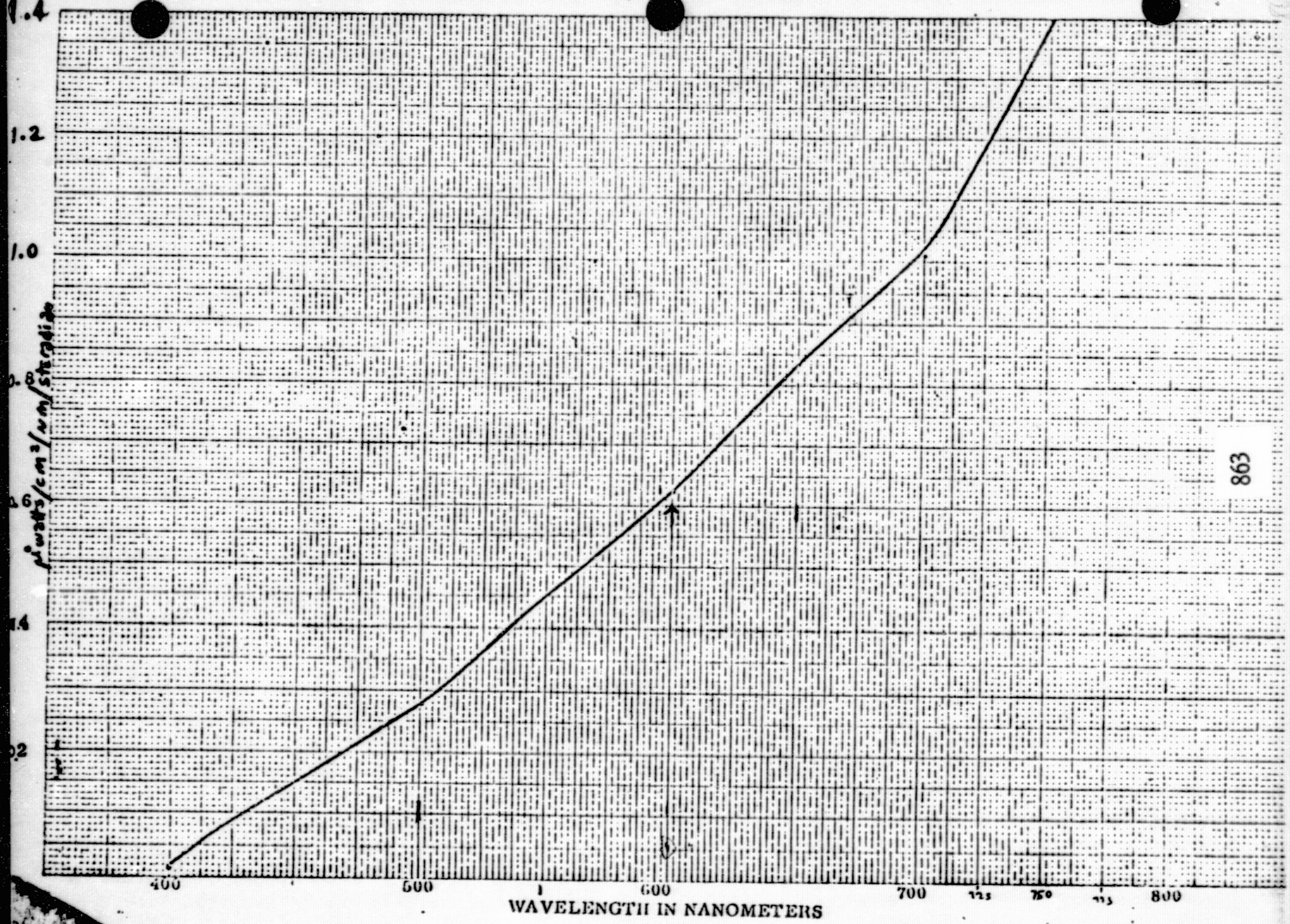
The above instrument was calibrated against Gamma Scientific working standard lamp Number GS 500-11 which in turn is checked against National Bureau of Standards Standard Lamp Numbers NBS 5868, NBS 7368, NBS 6008, NBS 6637, and GS 500-12 once a month. These lamps are owned by, and in the possession of, Gamma Scientific at all times.

12/22/70

Garry DeMarco

714-279-8034


SOURCE: N.B.S. STANDARD OF SPECTRAL IRRADIANCE
NOTE: Cosine Receptor of Spectroradiometer Against Center of Radiant Surface of Model 220-1
Spectral Characteristics of Model 220-1A S/N 828
4.00
3.50
3.00
2.00
1.50
1.00
0
400
450
500
550
600
650
700
750
Date
By
Gamma Scientific, Inc
San Diego, Calif.



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ECTRAL CHARACTERISTICS OF GAMMA SCIENTIFIC MODEL 220-1A S/N 828 Date 12/22/70
CE: N. B. S. STANDARD OF IRRADIANCE QM-1336

JET PROPULSION LABORATORY *California Institute of Technology • 4800 Oak Grove Drive, Pasadena, California 91103*

Ref: 824-IPL/SIPG/74-MRW:iw-311

22 July 1974

TO: Whom It May Concern

FROM: M. R. Wolf MRW(WBS?)

SUBJECT: PROCEDURE FOR CALIBRATING ITEK RADIOMETRIC SOURCE

1. Assume that previous spectroradiometer curves are valid at <u>high</u> light level, (largest aperture) at least as the relative spectral dependence is concerned, i.e., assume that for a given large aperture we know this spectral radiance to within a multiplicative constant:

$$\phi_\lambda = K\phi^*_\lambda \tag{1}$$

where ϕ_λ is the actual spectral radiance, K is an unknown constant, and ϕ^*_λ is the spectral radiance from the last (assumed erroneous) calibration.

2. Image both the Itek source and the diffuse block illuminated with the standard lamp with a broadband spot photometer, yielding two responses, R_1 and R_2.

where:
$$R_1 = c\int S_\lambda \phi_\lambda d\lambda = cK\int S_\lambda \phi^*_\lambda d\lambda \tag{2}$$

$$R_2 = c\int S_\lambda \phi^s_\lambda d\lambda \tag{3}$$

then:
$$K = \frac{R_1}{R_2} \cdot \frac{\int S_\lambda \phi^s_\lambda d\lambda}{\int S_\lambda \phi^*_\lambda d\lambda} \tag{4}$$

where: <u>c</u> is an unknown constant (which will cancel out);

$\underline{S_\lambda}$ is the normalized spectral responsivity of the spot photometer (max value = 1.0);

$\underline{\phi^s_\lambda}$ is the spectral radiance of the illuminated block;

$\underline{R_1}$ and $\underline{R_2}$ are in any units.

Telephone 354-4321 *Telex 675421* *Twx 910-588-3294*

- Since we now know K, we know ϕ_λ, as required. Assuming the same spectral dependence, we then do this for all apertures.

Distribution:

W. Green
H. McCall
T. Mutch
W. Patterson
J. Seidman
G. Taylor
S. Wall
A. Young

EPLAB

THE EPPLEY LABORATORY, INC.

SCIENTIFIC INSTRUMENTS

NEWPORT, R.I.
U.S.A.

CERTIFICATE OF CALIBRATION OF A STANDARD OF SPECTRAL IRRADIANCE

For: Martin Marietta Corp.
Denver, Colorado

S. O. 30384 Lamp Serial No. EPI-1574

1. Spectral Range of Calibration: 250 mμ to 2500 mμ.

2. Method of Calibration

   See "Instructions for Using the NBS 1000 Watt Quartz Iodine Lamp Standards of Spectral Irradiance", one copy of which is enclosed. See particularly paragraphs 2, 3 and 4 of the instructions regarding orientation of the standard.

3. Standards of Reference

   The serial numbers of the National Bureau of Standards' reference standards employed are: QM-111 QM-187 QM-189

4. Results

   The results are contained in the appended Table.

Tested by: R T Eggeman
R. T. Eggeman

Checked by: D B Daniels K
D. B. Daniels

Date: 16 May 1974

TABLE OF RESULTS

Spectral irradiance in microwatts per (cm^2-nanometer)
at a distance of 50 cm of lamp No. EPI-1574 operated at 7.9 amperes

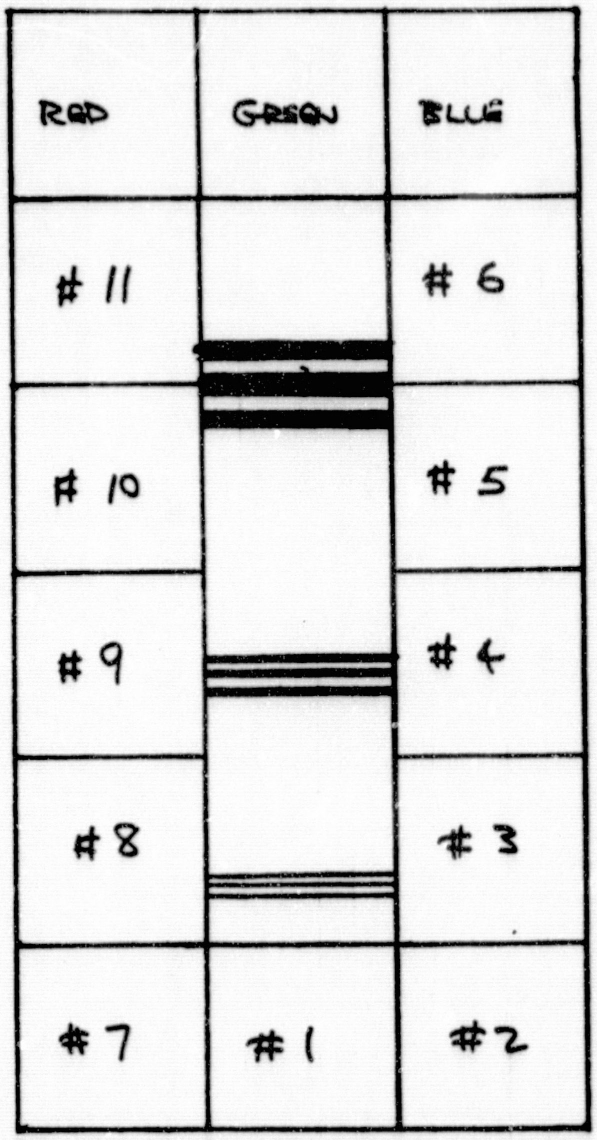
λ (nm = mμ)	Q_λ Spectral Irradiance	R_λ (RTC)	$Q_\lambda R_\lambda$	$\frac{Q_\lambda R_\lambda}{Q_o R_o}$
250	.0168			
260	.0301			
270	.0516			
280	.0812			
290	.123			
300	.180			
320	.343			
350	.777	.78	.606	.028
370	1.21	.78	.944	.043
400	2.11	.78	1.645	.075
450	4.31	.87	3.75	.172
500	7.18	.86	6.17	.283
550	10.5	.85	8.93	.409
600	14.0	.85	11.90	.545
650	17.2	.85	14.62	.670
700	19.9	.85	16.92	.775
750	22.0	.86	18.92	.867
800	23.6	.86	20.30	.930
900	24.8	.88	21.82	1.000
1000	24.0	.89	21.36	.979
(1150 1100	22.5	.88	19.80	.907
1200	20.7			~~[illegible]~~
1300	18.8			
1400	16.9			
1500	15.0			
1600	13.2			
1700	11.5			
1800	10.0			
1900	8.69			
2000	7.52			
2100	6.55			
2200	5.74			
2300	5.12			
2400	4.68			
2500	4.24			

(PREPARED BY) | (DATE) | (REPORT NO.)

(CHECKED BY) | (DATE) | (PROJECT)

TITLE

FIG. I



RTC PATCH NUMBERING

CALIBRATION OF RADIOMETRIC SOURCES AND RTC HOLDERS

1. Method

A transfer calibration was done for both types of sources. The standard used at MMA was a Gamma Scientific 100 ± 2 Foot Lambert Source. The transfer instrument was a Gamma Scientific Model 2000 Telephotometer, operated at a 20 arc-minute field setting. Details of the mathematical method of converting a photometric measurement to a radiometric measurement are in Appendix 1. The standard used to calibrate the Itek sources was a standard lamp illuminating a chalk block. The standard lamp was EPI - #1569. The transfer instrument was the same telephotometer used at MMA.

Since the measurements are made to two different standards referred back to NBS via a different chain of measurements, comparison of the RTC data from MMA and from Itek should provide a good estimate of the absolute accuracy of both sets of data (assuming the RTC's are identical).

The integrals $\int S_\lambda \phi^*_\lambda d\lambda$ and $\int S_\lambda \phi^s_\lambda d\lambda$ (see Appendix 1) were calculated to an accuracy of approximately 0.1% on our 360-44, using K_λ for S_λ (see Appendix 2).

2. Results

Tables 1-5 show the spectral radiance for RTC holders and radiometric sources. Data is presented as the spectral radiance value at the peak of spectral emission for the particular source (670 NM for the radiometric source and 900 NM for the RTC holder) versus the patch number or aperture number.

Also presented is the assumed normalized spectral dependence for each source (Tables 6, 7, 8). In the case of the radiometric source this was obtained from a previous spectroradiometer calibration of the MMA radiometric source at high light level (Aperture G2). In the case of the RTC holders, vendor lamp data for the actual lamp used was multiplied by data on the spectral reflectance of the RTC material. This data was obtained from LRC.

The Itek radiometric source comes out being almost exactly half as bright as the MMA one, as was already known. Comparison of the original calibration of this source using a spectroradiometer with the transfer calibration here shows remarkable agreement: the worst disagreement is for Aperture G4 where there is a 2.9% difference. The best agreement is for Aperture G6, where the difference is only 0.6%. The difference seems systematic, with the transfer calibration data always being high compared to the Itek data, except for Aperture G6.

It should be mentioned that the bulbs used during the Itek calibration had since burned out and been replaced before the transfer calibration was done, so we are comparing different lamps. However, it has been noted in previous experiments with these lamps, that there is no detectable lamp-to-lamp variation of output.

Comparison of Itek's calibration of the MMA Radiometric Source (the so-called 'deliverable' source) with the transfer calibration results is not so remarkable. The difference here is on the order of 20%, with the transfer calibration being high.

The RTC holders seem to disagree in a systematic way also, with the MMA holder (S/N-2) always being high. The worst disagreement is for Patch #4, where the MMA holder is 11% higher than the Itek one. The best agreement is for Patch #10 where the difference is 6.5%. The other patches disagree by about 7% on the average.

3. Error Analysis

3.1 Radiometric Source

The photoptic filter stack in the telephotometer is kept to ±3% of the international photoptic curve. This error would directly affect the results by the same amount. From an investigation of the previous calibration data from Itek, I feel that the spectral dependence of the source is known to about ±3% or better. The total drift during the measurement period was better than ±1%.

The Foot-Lambert source used at MMA was supposed to be accurate to ±2%, and the chalk block/standard lamp combination is probably good to this amount or better.

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Let's summarize:

Photoptic Error	± 3%
Spectral Dependence	± 3%
Drift	± 1%
Source Accuracy	± 2%
	± 9%

3.2 RTC Holders

The errors are the same in this case as for the radiometric source, except for a probable 5% error in spectral dependence due to the uncertainties in the spectral reflectance data for the RTC material.

To summarize:

Photoptic Error	± 3%
Spectral Dependence	± 5%
Drift	± 1%
Source Accuracy	± 2%
	±11%

TABLE 1

TRANSFER CALIBRATION OF ITEK RADIOMETRIC SOURCE, REDUCED DATA

Lamp Voltage = 23.00 Volts

Note: Both lamps were on during this test.

Aperture	Φ_λ(670) (microwatts/cm^2/steradian/NM)
G 11	1.162×10^0
G 9	2.691×10^0
G 8	5.158×10^0
G 7	7.724×10^0
G 6	1.064×10^1
G 5	1.751×10^1
G 4	2.436×10^1
G 3	3.102×10^1
G 2	3.651×10^1
G 1	4.894×10^1

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TABLE 2

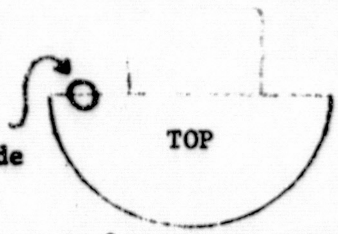
TRANSFER CALIBRATION OF MMA RADIOMETRIC SOURCE, REDUCED DATA

LAMP VOLTAGE = 23.00 VOLTS

LAMP POSITION I
(Left Lamp)

New bulb installed. "Burned in" for 45 minutes before testing began.

Lamp on this side



Aperture	Φ_λ (670) (Microwatts/cm^2/Steradian/NM)
G 11	1.251×10^0
G 9	3.03×10^0
G 8	5.955×10^0
G 7	8.711×10^0
G 6	1.226×10^1
G 5	1.892×10^1
G 3	3.319×10^1
G 2	3.746×10^1

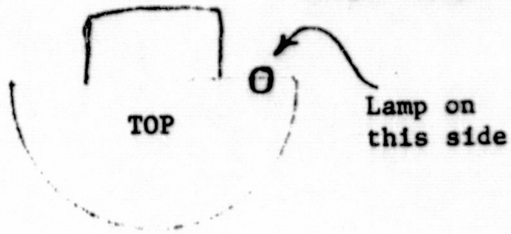
Φ_λ (670) ≡ Absolute Spectral Radiance of Source at 670 NM

TABLE 3

TRANSFER CALIBRATION OF MMA RADIOMETRIC SOURCE, REDUCED DATA

LAMP VOLTAGE = 23.00 VOLTS

LAMP POSITION II
(Right Lamp)



APERTURE	Φ_λ (670)
G 11	1.170×10^0
G 9	2.800×10^0
G 8	5.361×10^0
G 7	8.244×10^0
G 6	1.170×10^1
G 5	1.811×10^1
G 3	3.235×10^1
G 2	3.702×10^1

Φ_λ (670) = Absolute Spectral Radiance of Source at 670 NM

TABLE 4

TRANSFER CALIBRATION OF LANGLY TEST FIXTURE S/N 1 (AT ITEK)

Lamp: EPI #1569

RTC PATCH	$\Phi_\lambda(900)$ (microwatts/cm^2/steradian/NM)
# 1	5.914×10^0
# 2	4.731×10^0
# 3	4.196×10^0
# 4	3.871×10^0
# 5	3.518×10^0
# 6	2.884×10^0
# 7	2.282×10^0
# 8	1.905×10^0
# 9	1.571×10^0
# 10	9.220×10^{-1}
# 11	7.033×10^{-1}

COLOR PATCH	LUMINANCE (Foot-Lamberts)
BLUE	86.40
GREEN	145.73
RED	83.62

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TABLE 5

TRANSFER CALIBRATION OF LANGLY TEST FIXTURE, S/N 2 (AT MMA)

Lamp: EPI - #1574

$\Phi_\lambda(900) \equiv$ ABSOLUTE SPECTRAL RADIANCE OF PATCH AT 900 NM

RTC PATCH	$\Phi_\lambda(900)$ (Microwatts/cm^2/Steradian/NM)
#1	6.229×10^0
#2	5.080×10^0
#3	4.575×10^0
#4	4.317×10^0
#5	3.845×10^0
#6	3.415×10^0
#7	2.438×10^0
#8	2.051×10^0
#9	1.718×10^0
#10	1.203×10^0
#11	8.592×10^{-1}

COLOR PATCH	LUMINANCE (Foot-Lamberts)
BLUE	1.00×10^2
GREEN	1.60×10^2
RED	9.6×10^1

NOTE: Patches were numbered in decreasing order of their nominal reflectance (see Appendix 3). Color patch brightness given in photometric units because no information was available as to the spectral reflectance of the color patches.

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TABLE 6

RADIOMETRIC SOURCE SPECTRAL DEPENDENCE ≡ R_λ

Lamp Voltage = 23.0 Volts

should be Itek 62 CURVE

λ,NM	R_λ	
350	.0 *	
400	.1238	
420	.2300	
450	.3420	
470	.4097	
500	.5323	
520	.6258	
550	.7355	
570	.8129	
600	.8968	
620	.9452	
650	.9613	
670	1.0000	31.0
700	.9807	
720	.9678	
750	.9194	
770	.8613	
800	.8742	
900	.5452	
1000	.3071	
1050	.2510	
1100	.2836	
1130	.1774	
1150	.1613*	

*: Graphically Extrapolated Values

TABLE 7

LANGLY TEST FIXTURE SPECTRAL DEPENDENCE, S/N 1

(EPI - #1569 Multiplied By RTC Material Spectral Reflectivity)

λ, NM	R_{λ}
350	0.026
370	0.039
400	0.069
450	0.172
500	0.281
550	0.403
600	0.534
650	0.659
700	0.765
750	0.869
800	0.926
900	1.000
1000	0.995
1100	0.922
1150	0.886

3.871 PATCH #4

TABLE 8

LANGLY TEST FIXTURE SPECTRAL DEPENDENCE, S/N 2

(EPI - #1574 Multiplied By RTC Material Spectral Reflectance)

λ,NM	R_λ
350	0.028
370	0.043
400	0.075
450	0.172
500	0.283
550	0.409
600	0.545
650	0.670
700	0.775
750	0.867
800	0.930
900	1.000
1000	0.979
1100	0.907
1150	0.871

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TABLE 9

ITEK SPECTRORADIOMETER CALIBRATION OF RADIOMETRIC SOURCES

Spectral Radiance at 670 Nanometers, (microwatts/cm^2/ster/NM)

Lamp Voltage = 23.00 Volts

Aperture	Spectral Radiance: Itek Source Both Lamps	MMA Source Left Lamp	MMA Source Right Lamp
G 11	--	9.15×10^{-1}	--
G 9	--	2.31×10^{0}	--
G 8	5.05×10^{0}	4.70×10^{0}	--
G 7	7.64×10^{0}	6.62×10^{0}	6.01×10^{0}
G 6	1.07×10^{1}	9.45×10^{0}	--
G 5	1.71×10^{1}	1.50×10^{1}	--
G 4	2.36×10^{1}	--	--
G 3	3.06×10^{1}	2.71×10^{1}	--
G 2	3.60×10^{1}	3.10×10^{1}	--
G 1	--	--	--

Note: This data is included here for comparison purposes only. I do not mean to imply any responsibility for its preparation or accuracy.

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Ref: 824-IPL/SIPG/74-MRW:iw-311

22 July 1974

TO: Whom It May Concern

FROM: M. R. Wolf MRW (W1372)

SUBJECT: PROCEDURE FOR CALIBRATING ITEK RADIOMETRIC SOURCE

1. Assume that previous spectroradiometer curves are valid at high light level, (largest aperture) at least as the relative spectral dependence is concerned, i.e., assume that for a given large aperture we know this spectral radiance to within a multiplicative constant:

$$\phi_\lambda = K\phi^*_\lambda \tag{1}$$

where ϕ_λ is the actual spectral radiance, K is an unknown constant, and ϕ^*_λ is the spectral radiance from the last (assumed erroneous) calibration.

2. Image both the Itek source and the diffuse block illuminated with the standard lamp with a broadband spot photometer, yielding two responses, R_1 and R_2.

where:

$$R_1 = c\int S_\lambda \phi_\lambda d\lambda = cK\int S_\lambda \phi^*_\lambda d\lambda \tag{2}$$

$$R_2 = c\int S_\lambda \phi^s_\lambda d\lambda \tag{3}$$

then:

$$K = \frac{R_1}{R_2} \cdot \frac{\int S_\lambda \phi^s_\lambda d\lambda}{\int S_\lambda \phi^*_\lambda d\lambda} \tag{4}$$

where: c is an unknown constant (which will cancel out);

S_λ is the normalized spectral responsivity of the spot photometer (max value = 1.0);

ϕ^s_λ is the spectral radiance of the illuminated block;

R_1 and R_2 are in any units.

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- Since we now know K, we know ϕ_λ, as required. Assuming the same spectral dependence, we then do this for all apertures.

Distribution:

W. Green
H. McCall
T. Mutch
W. Patterson
J. Seidman
G. Taylor
S. Wall
A. Young

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APPENDIX 2

RELATIVE VISIBILITY FUNCTION OR PHOTOPTIC CURVE (K_λ)

λ	K_λ	λ	K_λ
350	0.	580	.870
380	.00004	590	.757
390	.00012	600	.631
400	.0004	610	.503
410	.0012	620	.381
420	.004	630	.285
430	.0116	640	.175
440	.023	650	.107
450	.038	660	.061
460	.060	670	.032
470	.091	680	.017
480	.139	690	.0082
490	.208	700	.0041
500	.323	710	.0021
510	.503	720	.00105
520	.710	730	.00052
530	.862	740	.00025
540	.954	750	.00012
550	.995	760	.00006
555	1.000	770	.00003
560	.995	1150	0.
570	.952		

(PREPARED BY) | (DATE) | (REPORT NO.)

(CHECKED BY) | (DATE) | (PROJECT)

TITLE

APPENDIX 3

RED	GREEN	BLUE
# 11		# 6
# 10		# 5
# 9		# 4
# 8		# 3
# 7	# 1	# 2

RTC PATCH NUMBERING

VIII

RADCOM SRD

620-65

VIKING '75 PROJECT

SOFTWARE REQUIREMENTS DOCUMENT FOR THE RADCAM PROGRAM

November 15, 1974

DRL LINE ITEM NO. N12-IPL-17

PREPARED BY:

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Prepared Under Contract No. NAS 7-100 by
Jet Propulsion Laboratory
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for
National Aeronautics and Space Administration
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RADCAM CONCURRENCE

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SECTION 1

INTRODUCTION

1.1 SCOPE

The document establishes the requirements for the performance, validation, and interfaces for the RADCAM program, to convert Viking Lander Camera image data to radiometric units.

1.2 INTRODUCTORY REMARKS

At this time, examination of camera test data received to date indicates that an algorithm similar to that used during first order processing (the ARADCAM subprogram of FOVLIP) will be satisfactory. This SRD describes the proposed algorithm, and includes an appendix describing the planned reduction of camera test data. At a later period (January-June, 1976) additional effort is planned to refine this algorithm based on additional analysis of camera performance. This SRD will be modified at that time to reflect any changes.

1.3 PROBLEM STATEMENT

Viking Lander images will consist of a two dimensional array of digital numbers, with values ranging from 0 to 63. Each image will be recorded at a selected value of gain and offset. In order to perform science analysis of the image data, it will be necessary to convert the raw digital data values recorded at a given gain and offset, at a particular temperature, to radiance units. RADCAM is designed to perform that function.

The functions of RADCAM are designed primarily to operate automatically under control of the LIBEXEC Monitor. Manual control of the program will be possible through LIBEXEC interactively by keyboard control, or in a batch processing mode by a job control deck.

SECTION 2

APPLICABLE DOCUMENTS

Seidman, J. B.; Zielenbach, J. W., and Green, W. B. — 620-55 Viking 75 Project Software Requirements Document for the Library and Executive Function Program (LIBEXEC). DRL Line Item No. N12-IPL-7.

Green, L. S. and Lesh, H. F. — 619-13 Viking 75 Project Software Requirements Document for the First Order Lander Image Processing Program (FOVLIP). DRL Line Item No. N10-SDI.

Ray, L. C. — 620-73 Viking 75 Project Software Requirements Document for the VLLOG Program. DRL Line Item No. N12-IPL-24, 25 June 1974.

SD-37R0007 Viking 75 Project Mission Design Planning Program (MDPLAN) Software Requirements Document, DRL Line Item No. N3-P019.

SECTION 3

REQUIREMENTS

3.1 SYSTEM

RADCAM will accept as input Viking Lander Camera image data that has been converted from Experiment Data Record (EDR) format into VICAR format by the VLLOG program. VLLOG will append label records to the basic image data containing parameters descriptive of the image; several of the parameters in the label records will be read by RADCAM and utilized during RADCAM processing.

User parameters are provided to RADCAM either interactively via keyboard entry or via job control deck in batch mode. Most required parameters will have a "default" value — the program will have built in values that are used unless overriden by user input.

Figure 1 is a flow diagram of RADCAM logic, and Table 1 describes data required or generated by RADCAM.

3.2 PROCESSING

3.2.1 Mode Selection

RADCAM has two modes of operation, called the "limits" mode and the "Absolute" mode. The mode of operation is selected by the user, and a mode parameter is entered to select the mode. If no parameter is input, the limits mode is assumed. Parameters are entered either from a user keyboard or via a job control deck in batch mode, as described in the LIBEXEC SRD.

The user is also required to select the radiance units assigned to the output image by RADCAM. The selection may be "radiance", "reflectance", or "both", and the selection is by a units parameter. If no parameter is input, "radiance" units are provided. If the units parameter is specified as "both" then both radiance and reflective units will be output.

If the UNITS are specified to be "radiance," then the output values from the "limits" mode are in microwatts/cm^2/steradian, and the "MAX" and "MIN" parameter in the "absolute" mode are also in microwatts/cm^2/steradian. If the UNITS parameter is specified as "reflectance," then the output values from the "limits" mode and the "MAX" and "MIN" parameter are measured in "diffuse relative reflectance" units (defined in Appendix A). In the limits mode, RADCAM calculates, using the camera gain and offset and calibration files stored in the program, the high and low levels of radiance or reflectance to be associated with the high and low pixel numbers of the binary

scale used, and the slope in RADIANCE/DN or REFLECTANCE/DN. In this mode, these two radiance or reflectance values and the slope are added to the label records, and represent the only output; the pixel values are left unchanged. In the absolute mode, two more parameters called MAX and MIN are input; these are the maximum and mininum values of radiance or reflectance to be associated with the maximum and minimum DN of this output picture for the binary scale used. A linear transformation is applied to all input pixel values so that MIN radiance or reflectance on the input picture translates to zero DN in the output picture, and MAX radiance or reflectance in the input picture translates to maximum DN in the output picture for the binary scale used. This mode would allow comparison of all hardcopy output on the same absolute scale (assuming the same values of MAX and MIN).

3.2.2 Limits Mode

As described in the previous section, the limits mode calculates the high and low levels of radiance or reflectance to be associated with this MAX and MIN DN in the input picture, and the slope in radiance and reflectance per DN. To do this, this algorithm must have access to calibration data for the particular camera as a function of temperature. At the time of this writing, it appears that a linear relationship exists between light level and DN.

The camera thus performs the following linear transformation on the input light signal

$$DN = G\left(\int_0^\infty R_\lambda^k \phi_\lambda d\lambda + f\right) \tag{1}$$

where DN is the binary Data Number which represents the camera's output; G is the amplifier gain expressed in DN per volt; f is the offset value in volts; R_λ^k is the spectral responsivity of the k^{th} channel, and ϕ_λ is the spectral radiance of the imaged scene. There are six possible gain settings and 32 possible offset settings. Absolute values of G in DN per volt for each of the six gain settings for three different temperatures, for each camera, will be determined during calibration testing. For a given camera, these can be expressed as a 3 × 6 array

$$G_{\ell m}$$

where ℓ is the temperature index, running from 1 to 3, and m is the gain index, running from 1 to 6. In general, a linear interpolation between two values of the temperature will be

necessary, in order to arrive at the actual gain value, G, for the temperature at which the frame was taken.

One must not confuse the gain integer which appears in the camera command word with the actual analog gain value in DN per volt, or the gain index which is used in this SRD. Enough confusion has resulted over this seemingly minor point that the following table is included for the sake of clarity. The analog gain values given are those for spare camera, room temperature.

Camera Command Gain	Gain Index*	Analog Gain Value (DN/VOLT)
0	1	450.55
1	2	228.76
2	3	111.45
3	4	55.78
4	5	27.99
5	6	13.84

*Array Index used in this SRD.

RADCAM will obtain values of the channel number, gain, offset, and temperature data number from the label records written by VLLOG for each Lander Camera image. A definition of the label format can be found in the VLLOG SRD.

The camera electronics outputs a 6-bit temperature data number which is linearly related to the temperature of the camera electronics. This number is recorded for every file generated by the camera. All calibration will be done using these numbers instead of actual temperatures, without recourse to any absolute scale (although the relation between temperature data number and temperature on an absolute scale will be known). VLLOG will provide this temperature data number in the frame label.

Since each gain and/or offset calibration test may be done at a slightly different temperature (nominal values for the three temperatures are 'room temp', 0°F, and -30°F), the three temperature indices do not have an absolute meaning in terms of temperature data number. This relationship is established by the array $T_{\ell m}$ where ℓ is a temperature index running from 1 to 3, and m is the gain index as above, and $T_{\ell m}$ are the 18 temperature data numbers corresponding to the temperature indices $\ell = 1, 2, 3$ and gain indices $m = 1, 2, 3, 4, 5, 6$.

To do the temperature interpolation, first the $T_{\ell m}$ array is consulted to determine, for the particular value of gain index at hand, what two values of the temperature index will bracket the temperature data number at which the frame was taken. Let's say these values come out $\ell 1$ and $\ell 2$. Then

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$$G = \left(\frac{\tau - T_{\ell 1, m}}{T_{\ell 2, m} - T_{\ell 1, m}}\right)\left(G_{\ell 2, m} - G_{\ell 1, m}\right) + G_{\ell 1, m} \quad (2)$$

where τ is the temperature data number for the input frame. Equation (2) is just linear interpolation between the gain values.

Values for offset in volts are determined during calibration testing for three temperatures. These can be expressed as a 3 × 32 array, similar to the gain array

$$f_{\ell n}$$

where $f_{\ell n}$ are the analog offset values, ℓ is the temperature index running from 1 to 3 and n is the offset index running from 1 to 32. An interpolation will be done as was done for the gain, to determine the value of the offset, f, for the temperature at which the input frame was taken.

Again, as in the case of the gain integer, we have an offset integer that might be confused with an offset index and an analog offset value. Again, a table is included to remove this confusion. The analog values given are those for spare camera, room temperature.

Camera Command Offset	Offset Index*	Analog Offset Value, Millivolts
0	1	217.07
1	2	69.42
2	3	-75.10
3	4	-226.36
4	5	-369.67
⋮	⋮	⋮
29	30	-3958.80
30	31	-4102.26
31	32	-4245.65

*Used in this SRD.

The relationship between temperature index and temperature data number is established in this case by the 3 × 32 array $R_{\ell n}$. Then

$$f = \left(\frac{\tau - R_{\ell 1, n}}{R_{\ell 2, n} - R_{\ell 1, n}}\right)\left(f_{\ell 2, n} - f_{\ell 1, n}\right) + f_{\ell 1, n} \quad (3)$$

when τ is again the temperature data number for the input frame.

The parameters C_1^k and C_2^k are used to convert from signal voltage to radiometric units. They are determined during calibration testing at three temperatures using the method described in Appendix B. These values can be expressed as an array

$$C_{I\ell}^k$$

where I = 1, 2 and denotes whether the contamination cover is being looked through or not; k denotes the k^th channel, and takes on values from 1 to 11; and ℓ is the temperature index as before (ℓ = 1, 2, or 3). The relation between temperature index and temperature data number is expressed as the 2 × 3 array

$$S_{\ell, I}$$

where I = 1 or 2 and ℓ is the temperature index running from 1 to 3.

Then the temperature interpolation can be expressed as

$$C_I^k = \left(\frac{\tau - S_{\ell 1, I}}{S_{\ell 2, I} - S_{\ell 1, I}} \right) \left(C_{I, \ell 2}^k - C_{I, \ell 1}^k \right) + C_{I, \ell 1}^k \tag{4}$$

where τ is again the temperature data number for the input frame, and $\ell 1$ and $\ell 2$ are determined as before.

For a given camera, the $G_{\ell n}$, $f_{\ell n}$, $T_{\ell m}$, $R_{\ell n}$, $C_{I\ell}^k$, and $S_{\ell I}$ arrays are referred to as the calibration file for that camera.

RADCAM will have access to these calibration files for each camera, and to the temperature at which the input frame was taken. Equations (5) through (7) or (8) through (10) will yield the required output values for the limits mode.

If the 'UNITS' parameter is specified as 'radiance,'

$$L_1 = -f C_I^k \tag{5}$$

$$L_2 = \left(\frac{255}{G} - f \right) C_I^k \tag{6}$$

$$\text{SLOPE} = C_I^k / G \tag{7}$$

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If the 'UNITS' parameter is specified to be 'reflectance,'

$$R_1 = -\frac{\pi D_m^2 \ f \ C_I^k}{D_e^2 \ I_3^k} \tag{8}$$

$$R_2 = \frac{\pi D_m^2 \left(\frac{255}{G}\right) - f \ C_I^k}{D_e^2 \ I_3^k} \tag{9}$$

$$\text{SLOPE} = \frac{\pi D_m^2 \ C_I^k}{D_e^2 \ I_3^k \ G} \tag{10}$$

where I_3^k, D_e, and D_m are defined in Appendix A, G is the gain, f is the offset, and C_I^k is the applicable calibration constant. RADCAM will have access to data as to when the contamination cover was opened and to the time the input picture was taken. If the picture was taken before the contamination cover was opened, C_2^k will be used. If it was taken after the contamination cover was opened, C_1^k will be used.

3.2.3 Absolute Mode

In the absolute mode, pixel values are linearly transformed so that a pixel value in the input that corresponds to MIN radiance or reflectance would transform to zero DN in output, and a pixel value that corresponded to MAX radiance or reflectance would be transformed to 255.

To do this, first the DN input values that correspond to MIN and MAX radiance or reflectance are calculated. Note that these may, in general, fall outside the range of the binary scale used (D1 is in general negative). Let's call these two values D1 and D2.

In terms of radiance,

$$D_1 = G\left(\frac{\text{MIN}}{c_I^k} + f\right) \tag{11}$$

$$D_2 = G\left(\frac{\text{MAX}}{c_I^k} + f\right) \tag{12}$$

or in terms of reflectance,

$$D_1 = G\left(\frac{(\mathrm{MIN})\, D_e^2\, I_3^k}{\pi D_m^2\, C_I^k} + f\right) \tag{13}$$

$$D_2 = G\left(\frac{(\mathrm{MAX})\, D_e^2\, I_3^k}{\pi D_m^2\, C_I^k} + f\right) \tag{14}$$

(See Appendix A for definitions of D_e, D_m, I_3^k.) where the subscript I = 1 if the contamination cover is out of the way, and I = 2 if it is in place.

$$y_{ij} = (D_{in} - D_1)\left(\frac{2^N - 1}{D_2 - D_1}\right) \tag{15}$$

The DN in the output picture (y_{ij}) can then be calculated from the input DN (x_{ij}) by use of Eq. (15). In the practical case, this would require on the order 10^6 evaluations of Eq. (15). Since this would be too lengthy, a lookup table is generated, so that Eq. (15) need be solved only $2^N - 1$ times. This will generate an integer table, call it IOUTPUT(I), where

$$\mathrm{IOUTPUT(I)} = \left[\left(\frac{I}{G} - f\right) C_I^k - \mathrm{MIN}\right]\left[\frac{255}{\mathrm{MAX - MIN}}\right] \tag{16}$$

in the case of radiance, or

$$\mathrm{IOUTPUT(I)} = \left[\left(\frac{\pi D_m^2}{D_e^2\, I_3^k}\right)\left(\frac{I}{G} - f\right) C_I^k - \mathrm{MIN}\right]\left[\frac{255}{\mathrm{MAX - MIN}}\right] \tag{17}$$

in the case of reflectance. Thus,

$$y_{ij} = \mathrm{IOUTPUT}(x_{ij}) \qquad i = 1, \cdots, M;\ j - 1, \cdots, N \tag{18}$$

which is quicker computationally than evaluating Eq. (15) 10^6 times. This lookup table is then used to transform input pixel values to output pixel values. MAX and MIN are also returned data values and will be put into the picture label. Reasonable

defaults for MAX and MIN will be determined early in the mission, and from then on they will be defaulted, except for special reasons.

3.3 INPUT/OUTPUT

There are three forms of input to RADCAM: the input pictures, the control parameters, and the calibration files. These are described in Table 1.

In the 'limits' mode, the only output from RADCAM are L1 and L2 or R_1 and R_2 and the slope. In the 'absolute' mode, the output is the processed picture and the values of MAX and MIN used.

3.4 SUBPROGRAMS

There are no subprograms associated with RADCAM.

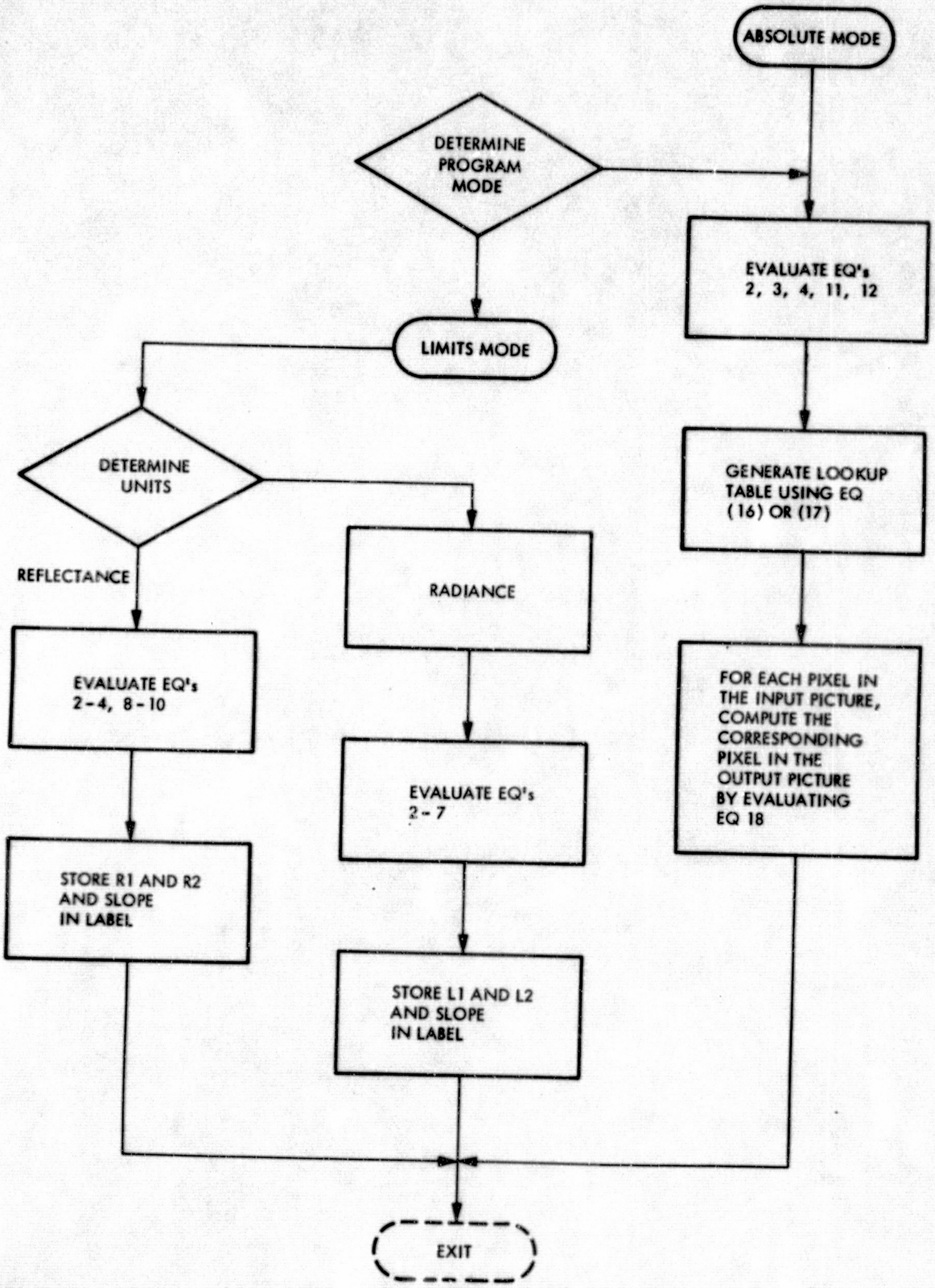

Figure 1. RADCAM Flow Diagram

Table 1. Data Required or Generated by RADCAM

Parameter	Definition	Type	Default Value
MODE	This parameter specifies which of the two possible modes (Limits or Absolute) is to be invoked.	Input	"Limits"
L1	Number of watts/cm^2/ster to be associated with zero DN in the input frame in the "Limits" mode.	Output	NA
L2	The number of watts/cm^2/ster to be associated with maximum DN in the input frame in the "Limits" mode.	Output	NA
CAMERA I.D.	An identifier which tells ARADCAM which camera the data came from.	Input from Frame Label	NA
GAIN*	An integer value ranging from 0 to 5 identifying which gain setting was used to expose the frame (0 indicates maximum gain; 5 indicates minimum gain).	Input from Frame Label	NA
OFFSET*	An integer value ranging from 0 to 31 specifying camera offset setting.	Input from Frame Label	NA
R1	The reflectance to be associated with 0 DN in the input frame in the limits mode.	Output	NA

Table 1. Data Required or Generated by RADCAM (contd)

Parameter	Definition	Type	Default Value
R2	The reflectance to be associated with maximum DN in the input frame in the limits mode.	Output	NA
UNITS	Denotes whether max and min parameters are to be in reflectance or radiance.	Input	Radiance
EVENT TIME	An identifier that will allow the ranking of flight data in time order of being taken.	Input from Frame Label	NA
MAX	The reflectance or radiance to be associated with maximum DN in the output from the absolute mode.	Input/Output	TBD
MIN	The reflectance or radiance to be associated with minimum DN in the output from the absolute mode.	Input/Output	TBD
EVENT TIME (GMT)	Used to calculate the range from the sun to Mars for the reflectance calculations. Needed only if the units parameter is specified to be "reflectance."	Input from Frame Label	NA
SLOPE	Reflectance per DN or radiance per DN in "Limits" mode.	Output	NA
TEMPERATURE DATA NUMBER	An integer value ranging from 0 to 63, linearly related to the temperature at which the frame was taken.	Input from Frame Unit	NA

Table 1. Data Required or Generated by RADCAM (contd)

Parameter	Definition	Type	Default Value
GAIN ARRAY	$G_{\ell n}$	Input Calibration File	NA
OFFSET ARRAY	$f_{\ell n}$	Input Calibration File	NA
TEMPERATURE INDEX ARRAY	$T_{\ell m}$	Input Calibration File	NA
TEMPERATURE INDEX ARRAY	$R_{\ell n}$	Input Calibration File	NA
TEMPERATURE INDEX ARRAY	$S_{\ell I}$	Input Calibration File	NA
CALIBRATION CONSTANT ARRAY	$C_{Ik\ell}$	Input Calibration File	NA
$[x_{ij}; i=1,2,\cdots,M, j=1,2,\cdots,N]$	Digital image data to be processed.	Input	NA
$[y_{ij}; i=1,2,\cdots,M; j=1,2,\cdots,N]$	Processed digital image data.	Output	NA
NOTE: Both x_{ij} and y_{ij} are eight-bit data.			

*NOTE: Gain and offset numbers, described here, are not to be confused with the actual values for gain and offset which they represent.

SECTION 4

HARDWARE ENVIRONMENT

4.1 EXTERNAL INTERFACES

None

4.2 HARDWARE

This program will be run on an IBM 360/65 class computer at JPL's Image Processing Laboratory.

4.3 MAN/MACHINE INTERFACE

The RADCAM program will be controlled by the LIBEXEC monitor, which will provide for batch or interactive keyboard initiation of RADCAM.

SECTION 5

VERIFICATION

All options of the RADCAM program will be run on the IBM 360/44 at JPL's Image Processing Laboratory. Program validation will be based on evaluation of before and after listings of images and/or associated label records.

APPENDIX A

DIFFUSE RELATIVE REFLECTANCE

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DIFFUSE RELATIVE REFLECTANCE

Diffuse relative reflectance will be defined by the following equation:

$$R \equiv \frac{\int_{o}^{\infty} \gamma_{\lambda}^{k} \Phi_{\lambda} \, d\lambda}{\int_{o}^{\infty} \gamma_{\lambda}^{k} \Phi_{\lambda}^{s} \, d\lambda} \tag{A1}$$

where γ_{λ}^{k} is the normalized spectral responsivity of the k^{th} channel (maximum value = 1.0), Φ_{λ} is the scene spectral radiance, and Φ_{λ}^{s} is the spectral radiance of a (100 percent reflecting perfectly diffuse) target normally lit by the sun at the actual Sun-Mars distance at the time of the observation. Φ_{λ}^{s} can easily be expressed as

$$\Phi_{\lambda}^{s} = \frac{1}{\pi} F_{\lambda} \left(\frac{D_e}{D_m} \right)^2 \tag{A2}$$

where F_{λ} is the solar spectral irradiance at the mean earth-Sun distance in microwatts/cm^2/nanometer, D_e is the mean earth-Sun distance, and D_m is the distance from the Sun to Mars at the instant of the observation. R can then be expressed as

$$R = \frac{\pi D_m^2 (DN/G - f) \, C_I^k}{D_e^2 \, I_3^k} \tag{A3}$$

where DN is the raw digital data number from the camera, G is the actual gain value in DN per volt, f is the offset in volts, C_I^k is the calibration constant, and I_3^k is defined as

$$I_3^k \equiv \int_{o}^{\infty} F_{\lambda} \gamma_{\lambda}^{k} \, d\lambda$$

RADCAM will compute D_e and D_m using the same algorithm as MDPLAN (see Section 3.2.6.2 of the MDPLAN SRD).

APPENDIX B

RADIOMETRIC CALIBRATION OF VIKING LANDER CAMERAS

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RADIOMETRIC CALIBRATION OF VIKING LANDER CAMERAS

From IPL-defined camera testing done at Itek, we will have a knowledge of the absolute gain (in DN per volt) and offset (in volts) for each camera. The camera VPE* may be modeled, for computational purposes, as in Figure I.

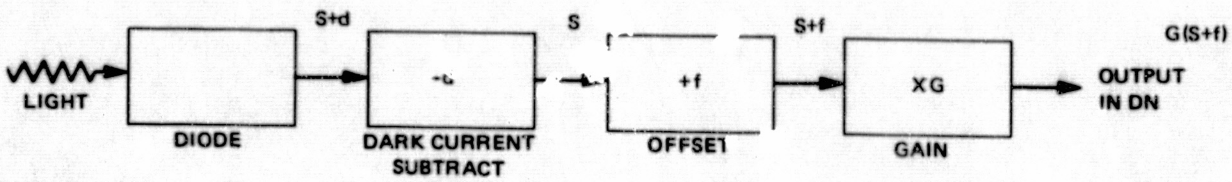

Figure I.

We can reduce the camera output in DN to the "signal voltage," S, by dividing by the gain and subtracting the offset, i.e.,

$$S = \frac{DN}{G} - f \qquad (1)$$

The purpose of camera or "radiometer" calibration will be to determine a constant C^k such that

$$R = C^k \cdot S \qquad (2)$$

where the superscript k, now and in all following equations, refers to the k^{th} channel, where R is in microwatts/cm^2/steradian, and S is the signal voltage defined in Eq. (1).

The signal, S, can be written

$$S = \int_0^\infty R_\lambda^k \Phi_\lambda \, d\lambda \qquad (3)$$

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where R_λ^k is the spectral responsivity of the camera considered as a radiometer and is measured in volt-cm^2-steradians/microwatt, and Φ_λ is the scene spectral radiance in microwatts/cm^2-steradian-nanometer.

From MMA we have relative spectral responsivity for the kth channel of each PSA. Call this A_λ^k. Then

$$R_\lambda^k = K_\lambda^k A_\lambda^k T_\lambda \tag{4}$$

where K is an unknown constant (to be determined) and T_λ is the spectral transmission of the camera optics.

Assume we are imaging a standard lamp-diffuser combination of known spectral radiance, Φ_λ^s

$$\Phi_\lambda^s = \Phi_o^s \phi_\lambda^s \tag{5}$$

where Φ_o^s is the peak spectral radiance (a constant) and ϕ_λ^s is the spectrally dependent part (maximum value = 1.0).

By substitution of Eqs. (4) and (5) into Eq. (3), we get

$$S^s = \int_o^\infty \Phi_o^s K^k A_\lambda^k T_\lambda \phi_\lambda^s \, d\lambda \tag{6}$$

or

$$S^s = \Phi_o^s K^k \int_o^\infty A_\lambda^k T_\lambda \phi_\lambda^s \, d\lambda \tag{7}$$

If we define

$$I_1^k \equiv \int_o^\infty A_\lambda^k T_\lambda \phi_\lambda^s \, d\lambda \tag{8}$$

then

$$S^s = \Phi_o^s K^k I_1^k \tag{9}$$

or

$$K^k = \frac{S^s}{\Phi_o^s \, I_1^k} \tag{10}$$

We know I_1^k for all values of k for all cameras by computation on data supplied by MMA, Itek, and the vendor of the calibration lamp.

If we image the diffuse calibration source, we then can calculate K^k for S^s, Φ_o^s, and I_1^k.

Now we know R_λ^k of Eq. (4), since K is not longer unknown.

Let us now factor R_λ^k into peak value and spectrally dependent parts, as we have done for Φ_λ.

$$R_\lambda^k = R_o^k \, \gamma_\lambda^k \tag{11}$$

where R_o^k is the peak value and γ_λ^k is the spectral dependence (maximum value = 1.0). We will also call γ_λ^k the normalized spectral responsivity.

$$\gamma_\lambda^k = \frac{K^k \, A_\lambda^k \, T_\lambda}{R_o^k} \tag{12}$$

Now Eq. (3) can be written

$$S = R_o^k \int_o^\infty \gamma_\lambda^k \, \phi_\lambda \, d\lambda \tag{13}$$

where ϕ_λ is now an arbitrary (unknown) scene spectral radiance. Solving Eq. (13) for

$$\int_o^\infty \gamma_\lambda^k \, \phi_\lambda \, d\lambda \, ,$$

we get

$$R \equiv \int_o^\infty \gamma_\lambda^k \, \phi_\lambda \, d\lambda = \frac{S}{R_o^k} = C^k \cdot S \tag{14}$$

$$C^k = 1/R_o^k \tag{15}$$

where R is defined as the weighted integral of the source spectral radiance over all wavelengths and where the normalized spectral responsivity, γ_λ^k, is the weighting function. This R value, measured in microwatts/cm^2-steradian will be the primary output of program RADCAM.

The calibration of the camera then consists of several steps:

1) Image a flat field of known spectral radiance.

2) Calculate S^s from Eq. (1).

3) Evaluate integral I_1^k of Eq. (8) from data supplied by MMA, Itek, and lamp vendor.

4) Calculate K^k from Eq. (10).

5) Find R_o^k by inspection from Eq. (4).

6) Calculate C^k from Eq. (15)

Now that C^k is known, we can evaluate R for any value of S. In other words, the camera is calibrated.

We can combine Eqs. (1) and (2) thusly:

$$R = C^k\left(\frac{DN}{G} - f\right) \tag{16}$$

Equation (16) then gives us R in terms of the camera parameters G, f, and camera output DN, and the calibration constant C^k.

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CALIBRATION FILE FORMAT

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Morrill

JET PROPULSION LABORATORY

INTEROFFICE MEMORANDUM
824-IPL/SIPG/75-019
17 January 1975

TO: Bill Green

FROM: Mike Wolf MRW

SUBJECT: VIKING LANDER CALIBRATION FILE FORMAT

I have worked out a format for Viking Lander Calibration Files that seems reasonable. The files will consist on N VICAR labels, followed by one record of 1352 bytes. The byte-by-byte breakdown is outlined in Table 1. Arrays will be stored with the first index varying most rapidly, as in Fortran, so that all the core buffers representing the arrays can be loaded with a single VMIO call READ. This assumes, of course, that the arrays were allocated in the proper order in RADCAM. Jean Lorre and I have discussed this and he has agreed to do this.

The VICAR labels could have a long wordy description of the contents, origin and limitations of the file, but the file itself is self identifying. The first ten words of the file is used for identifying information. The first word is used for the camera I.D. (see Table 2), the second word for file type (see Table 3) and the third word for creation date (see Table 4). The next seven words are reserved for future use. The actual calibration file data begins at byte 41.

If there are no objections, we will begin using this format immediately.

MRW:iw

cc: D. Atwood
J. Lorre
M. Morrill

TABLE 1

VIKING LANDER CALIBRATION FILE DATA SET FORMAT SUMMARY

Bytes	1-4	Camera I.D.
Bytes	5-8	Type of File
Bytes	9-12	Creation Date
Bytes	13-40	Reserved
Bytes	41-328	$C_{K\ell I}$
Bytes	329-352	$S_{\ell I}$
Bytes	353-424	$G_{\ell M}$
Bytes	425-496	$T_{\ell M}$
Bytes	497-880	$f_{\ell N}$
Bytes	881-1264	$R_{\ell N}$
Bytes	1265-1308	I_K
Bytes	1309-1352	D_K

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TABLE 2

CAMERA IDENTIFICATION FORMAT

I.D.	CAMERA
1	STC
2	SPARE
3	FC-2A
4	FC-1B
5	FC-2B
6	FC-3A
7	LOGISTICS SPARE
8	FC-1A
9	FC-3B

TABLE 3

FILE TYPE FORMAT

FILE TYPE		COMMENTS
1		Pre-flight, no temp, no contamination cover, no radiation
2		Pre-flight, temp, no contamination cover, no radiation
3	New	Pre-flight, temp, contamination cover, no radiation
4		Pre-flight, temp, contamination cover, radiation
5	Final	Flight, no radiation
6		Flight, radiation*

* see word three for date of update

TABLE 4

CREATION DATE FORMAT

The creation date will be a five digit integer, the first two (most significant) digits of which are the two least significant digits of the year. The next three digits are the ordinal number of day in the year.

e.g., <u>76001</u>

YEAR DAY

1976 JANUARY 1

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X

LANDER CAMERA VIGNETTING FUNCTION

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VIKING LANDER CAMERA OPTICAL SYSTEM TRANSMISSION AS A FUNCTION OF ELEVATION (Contamination Cover Closed) NORMALIZED TO 1.0 AT 0° ELEVATION

ELEVATION (Degrees)	BLUE	GREEN	RED	IR3	IR2	IR1	SUN	BB4
40.2	-0.01*	-0.03*	0.01	0.01	0.02	0.02	0.06	0.11
38.9	-0.02*	0.01	0.04	0.01	0.02	0.04	0.11	0.17
36.6	0.03	0.08	0.19	0.04	0.12	0.18	0.31	0.43
33.8	0.26	0.37	0.46	0.28	0.35	0.47	0.55	0.64
31.2	0.49	0.60	0.67	0.51	0.57	0.66	0.75	0.82
27.2	0.84	0.90	0.91	0.84	0.86	0.93	0.96	1.00
23.1	1.00	0.97	0.97	0.99	0.98	0.99	0.98	0.99

* Negative values are the result of random error impressed upon a very small or zero value.

Table 1

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